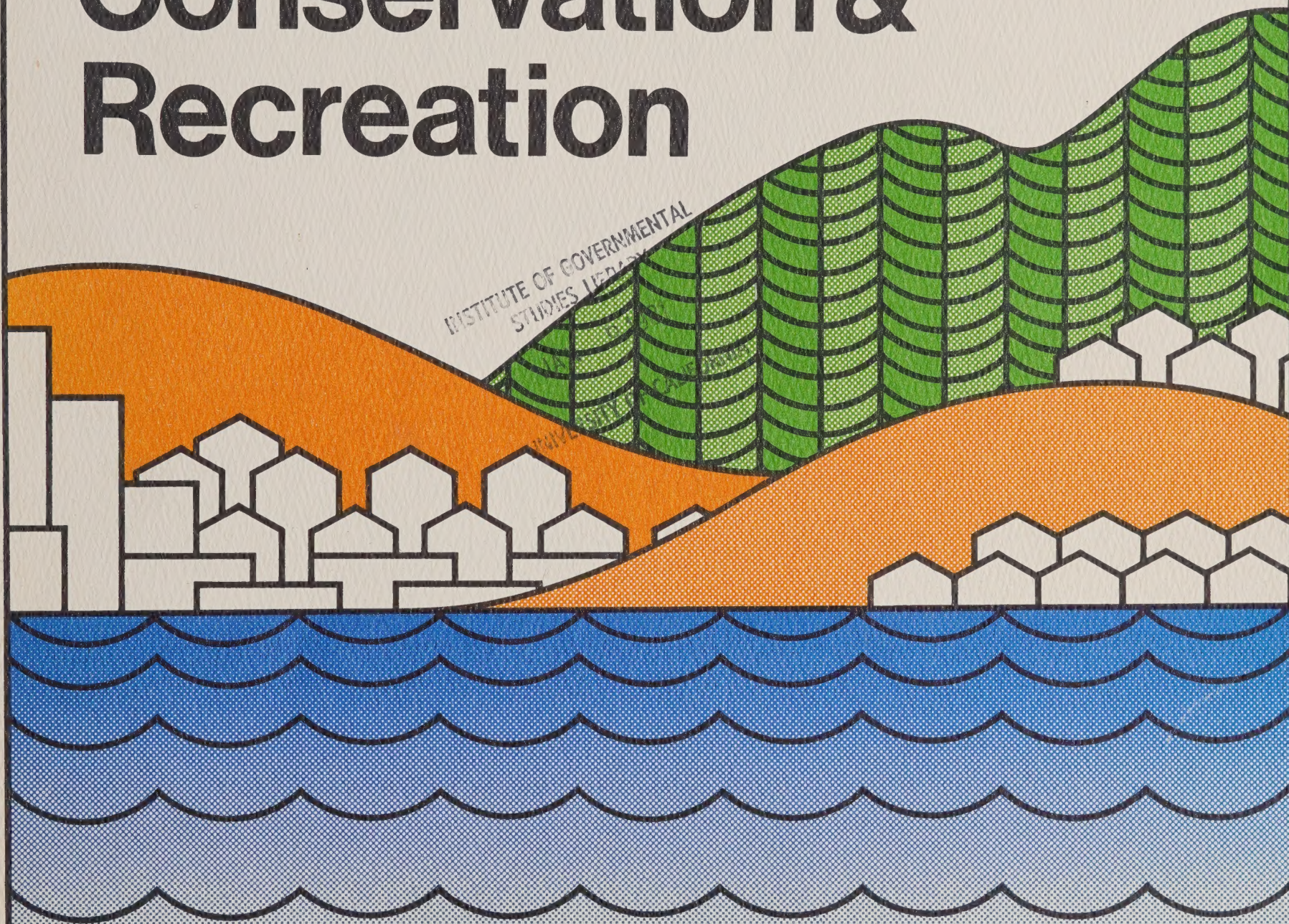


Open Space, Conservation & Recreation



An Element of the Oakland Comprehensive Plan

Open Space, Conservation, and Recreation

An Element
of the Oakland
Comprehensive Plan

City of Oakland
June, 1976

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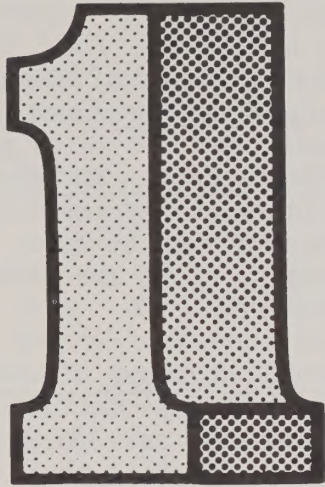
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Introduction

Americans have recently come to realize, sometimes quite painfully through experiences like the Energy Crisis, that this planet's natural resources are not limitless. They have found that open land, wildlife, water, and other resources must be guarded against such threats as pollution and must be conserved wisely in the interest of present and future generations.

At the same time Americans have been paying more and more attention to a second, and related, concern. With increasing population and leisure time, the demand and the need for outdoor recreation have been growing at an impressive rate--and this while close-in open land suitable for recreation has been rapidly disappearing. Intelligent foresight and vigorous action are needed to meet today's, and tomorrow's, recreation needs.

As one result of these concerns, the State of California has enacted legislation requiring every city's general plan to contain:

1. an "open space element," outlining policies and programs related to land

for open space uses like outdoor recreation and preservation of natural resources; and

2. a "conservation element," dealing with the preservation and utilization of natural resources.

The State law also mentions a "recreation element," concerned with parks and recreation areas, although its adoption by cities is voluntary.

Since these three elements overlap to a high degree, this report views them together. It is intended, therefore, to serve as Oakland's Open Space, Conservation, and Recreation Element.

Relevant State and Regional Plans

The conclusions and proposals in this report have been prepared within the framework of various open space, conservation, and recreation plans of higher levels of government. In fact, the latter have done an impressive amount of study and planning within the last few years. Some of the more important documents include:

1. the California Outdoor Recreation Resources Plan, completed in 1972 (revised in 1974) by the State Department of Parks and Recreation, which is intended as a basic guide for all recreation suppliers in California;
2. the State Environmental Goals and Policies Report, prepared by the Office of Planning and Research and adopted by the Governor in 1973, which contains goals and policies on nine basic subjects of current environmental concern (including significant and unique environmental resources and hazards);
3. Development Guidelines for Areas of State-wide Concern, prepared for the Office of Planning and Research in 1974, which offers guidelines to help local governments regulate development in areas of significant environmental resources or hazards;

4. the Regional Plan 1970:1990 adopted by ABAG (the Association of Bay Area Governments) in 1970, and the Regional Open Space Plan--Phase II approved in 1972, which call for much of the Bay Region's land to be permanent open space or open space reserves;
5. the report Areas of Critical Environmental Concern, issued by ABAG in 1975, which provides criteria and standards for identifying critical areas of regional significance;
6. the San Francisco Bay Plan, adopted by BCDC (the Bay Conservation and Development Commission) in 1969, which provides for protection and carefully regulated use of the Bay and its shoreline, and encourages public access where feasible;
7. the East Bay Regional Park District's Master Plan, approved in 1973, which calls for major expansion of the District's system of parklands and trailways.

Related City Plans

Oakland has also been concerning itself with matters relevant to this report.

The general plan which the State requires of the City is called the "Oakland Comprehensive Plan." It includes a Policy Plan, which is the City Council's compendium of all basic goals and policies. It also includes whatever additional components (reports, action programs, etc.) the Council declares to be part of it.

One such component, approved by the Council in 1973, was an earlier "Open Space, Recreation, and Conservation Element"--but one considerably less thorough than the present report. The latter is intended to replace

it as an official part of the Oakland Comprehensive Plan.

Of the other components of the Comprehensive Plan, the following are especially relevant:

1. the Seismic Safety and Safety Element, which includes information and policies on areas subject to fault movement, landslides, fire, and other environmental hazards;
2. the Scenic Highways Element, which is concerned with protection and enhancement of scenic corridors along Skyline Boulevard, the MacArthur Freeway, and other scenic routes;
3. the Circulation Element, which proposes extensive systems of pedestrianways and recreational and commuter bikeways--and which also calls for tree planting and other major beautification efforts along the city's trafficways;
4. the Shepherd Canyon Corridor Plan, which presents guidelines and recommended actions for preserving this canyon's unique scenic character.

The Port of Oakland, a quasi-autonomous arm of the City which has jurisdiction over nearly the entire waterfront, has its own Shoreline Plan. This document (which is consistent with the City's overall Comprehensive Plan) provides for waterfront shipping, commercial, and industrial needs while also reserving sizable areas for recreation or open space.

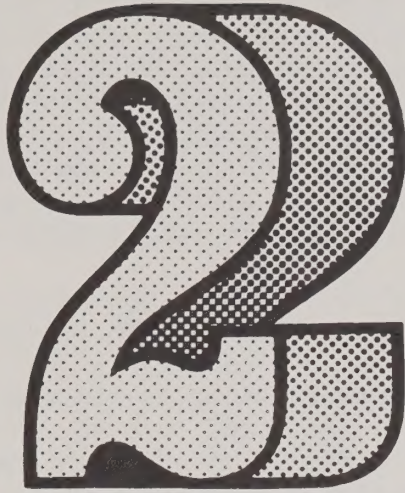
About This Report

The present report was drafted by the City Planning Department, in consultation with the Office of Parks and Recreation and other relevant parties.

Its organization reflects the differences, and the relationships, between the overlapping subject areas it deals with. Thus Chapter 2 looks at open space and natural resources with the emphasis on their conservation. Although it is often talking about the same pieces of land, Chapter 3 emphasizes the provision of parks and recreation as a service. Since both concerns can often be served by the same actions, Chapter 4 then presents an action program dealing with both of them. That is followed by some appendices. One of them explains how the Element serves, as permitted by State guidelines under the California Environmental Quality Act, as an Environmental Impact Report (EIR) on itself.

This Open Space, Conservation, and Recreation Element is not a finely detailed blueprint. Many of the maps, data, policies, and programs here are general in nature. Indeed the Element is intended as a generalized information base and a broad statement of intent. It is a framework within which more detailed study and information collection must continue, as well as more detailed decisions on specific projects. The Element therefore lays special emphasis on these ongoing processes--and on the need for the extensive involvement in them of citizens and neighborhoods.

As one result of these processes, it is expected that the Element itself will be amended and refined from time to time.



Open Space and Natural Resources

With its strategic location in the great amphitheater formed by San Francisco Bay and its encircling hills, Oakland has a magnificent natural setting. Yet a century and a third of urbanization has wrought drastic changes, many of them needlessly destructive to the natural environment.

The hills have been drastically reshaped in many places by subdivision grading, and scarred in some locations by quarries, with scant consideration for the environment. Along the shoreline, tidal marshes and open water have been replaced by extensive fill projects, too often with inadequate thought given to ecological effects. Between the hills and the Bay, the potential of Oakland's numerous wooded creeks has been ignored and many of these have disappeared forever in underground conduits. Above all, most sections of the city have been covered by thousands of acres of building sites and streets, with too few open spaces left among them to relieve this pattern. As a result valuable natural resources have been covered over, destroyed, or quickly

consumed without thought for replacement.

This pattern of development has been common in most American cities in the past. But in recent years there has been a growing awareness of not only the values of the natural environment, but of the public's ability to intervene in the process which has allowed such development. The response in some communities has been to block all new development. A more reasonable approach would allow some physical changes and some construction on existing open space where justified, but would require strict environmental controls.

Such an approach is reflected in this Element's basic open space and conservation goal:

.To conserve with care the open space and natural resources which will be needed by present and future generations.

The term "conservation" does not exclude development. In fact future development seems necessary to meet Oakland's economic and housing goals. However, there are other real needs which demand that a high proportion of the open space and natural resources in Oakland be kept intact. The goal therefore implies that the long-range need for open space and natural resources must be kept in mind, and that any consumption of them must be carefully justified.

Adding this new goal will require that an existing Comprehensive Plan goal be amended to avoid duplication. The goal which now reads "To improve Oakland's physical environment and to preserve the natural qualities of Oakland's setting" should be changed to read: "To protect and improve Oakland's physical environment."

The open space and conservation issues discussed below must be faced by governments at all levels, although the City itself has a crucial role as a major steward for those resources which are in Oakland. Furthermore, governmental actions will need to be supplemented by private efforts. As the State Legislature has declared in the

California Environmental Quality Act, "Every citizen has a responsibility to contribute to the preservation and enhancement of the environment."

General Considerations

DEFINING CONSERVATION

According to the State's General Plan Guidelines, "Conservation is the planned management, preparation, and wise utilization of natural resources. The object of conservation is to prevent the wasteful exploitation, destruction or neglect of these resources."

The conservation philosophy views natural resources as more than commodities to be consumed in whatever amount the current market demands. Instead, it takes a long-range perspective and calls for "managing" resources in ways which will ensure their continued availability for generations to come.

This philosophy does not rule out all use of resources. What it does condemn is unjustified, unrestricted, wasteful use of resources: use in ways which may exhaust or pollute the supply.

Conservation does not mean simply leaving resources alone. To the contrary, good management often involves positive actions to protect, replenish, or add to a resource. Examples are the restocking of fish in a stream and the controlled burning of underbrush in an area with high fire risk. Steps such as these may be especially important in a metropolitan setting like Oakland where man's inroads put special pressures on the remaining natural areas.

Conservation also means more than a static view of individual resources. Instead it considers resources in terms of the various dynamic systems in the environment--natural processes which have a value and a logic all their own and which man ignores at his own risk. The "water cycle" is one familiar example but there are many others, and they interact with one another.

The term "conservation" might also be applied to preservation of historic buildings. However, the State Code in requiring a conservation element refers to "natural" resources. The code also says that a city may include a special "historic preservation element" in its general plan. Another part of the Oakland Comprehensive Plan already contains a policy calling for preservation of historic or architecturally valuable buildings.

DEFINING OPEN SPACE AND ITS FUNCTIONS

Many of the natural resources discussed later in this chapter are found in open space. Actually open space itself is a resource--a scarce and valuable one which merits conservation.

Open space can be defined as any land or water area which is essentially unbuilt on. It comes in all sizes. Depending on the scale of one's concern, an open space may be as big as San Francisco Bay or as small as a front yard.

Instead of being regarded as "leftovers," open space needs to be recognized as a basic component of every city. Open spaces may serve a great number of real and important functions. State law lists four of these:

1. outdoor recreation (parks, trailways, scenic areas, etc.);
2. preservation of natural resources (areas for plants and animals, ecological study areas, bays, streams, etc.);
3. managed production of resources (farms, rangeland, groundwater recharge basins, commercial fishery areas, major mineral deposits, etc.);
4. public health and safety (areas of geologic, fire, or other hazards, areas to protect reservoirs, etc.).

To these should be added the following:

5. transportation and utilities (circulation and

utility rights-of-way);

6. urban form (open space to provide visual contrast to the crowded city, or to prevent inefficient patterns of scattered development, or separate incompatible land uses).

OPEN SPACE IN OAKLAND

There are still many tracts of open space, large and small, in Oakland. Map 1 depicts the larger ones. The open lands shown comprise roughly a fourth of the city's land area.

Neighborhood parks and other small open spaces and, of course, yards and local streets are not shown on the map. Also not shown are some residential areas which--because of large lot size or many scattered vacant lots--verge on being "open space." Such low-density areas are common in the hills above the Warren Freeway. Here, many of the steepest hillsides have been left unbuilt; and in some sections, like Montclair, a heavy growth of trees hides houses and gives a park-like effect to the neighborhood.

Other land should also be mentioned, even though it is often not thought of as "open space." Such land includes Metropolitan Oakland International Airport, a great variety of open industrial properties, and parking lots. The Coliseum parking area is an obvious example, but even small lots can be significant at a local scale. In fact, in most commercial areas parking lots are the only open spaces.

Spatial Pattern

The pattern on the map illustrates:

1. the importance of San Francisco Bay (including the Estuary)--easily the Bay Area's, and Oakland's, most important open space;
2. the great "backdrop" of open hillside land behind Oakland, mostly just beyond the ridgeline city limits but also at intervals spilling far down into the city;

3. the scarcity of open space (except at Lake Merritt) in the flatlands and lower foothills where most Oaklanders live.

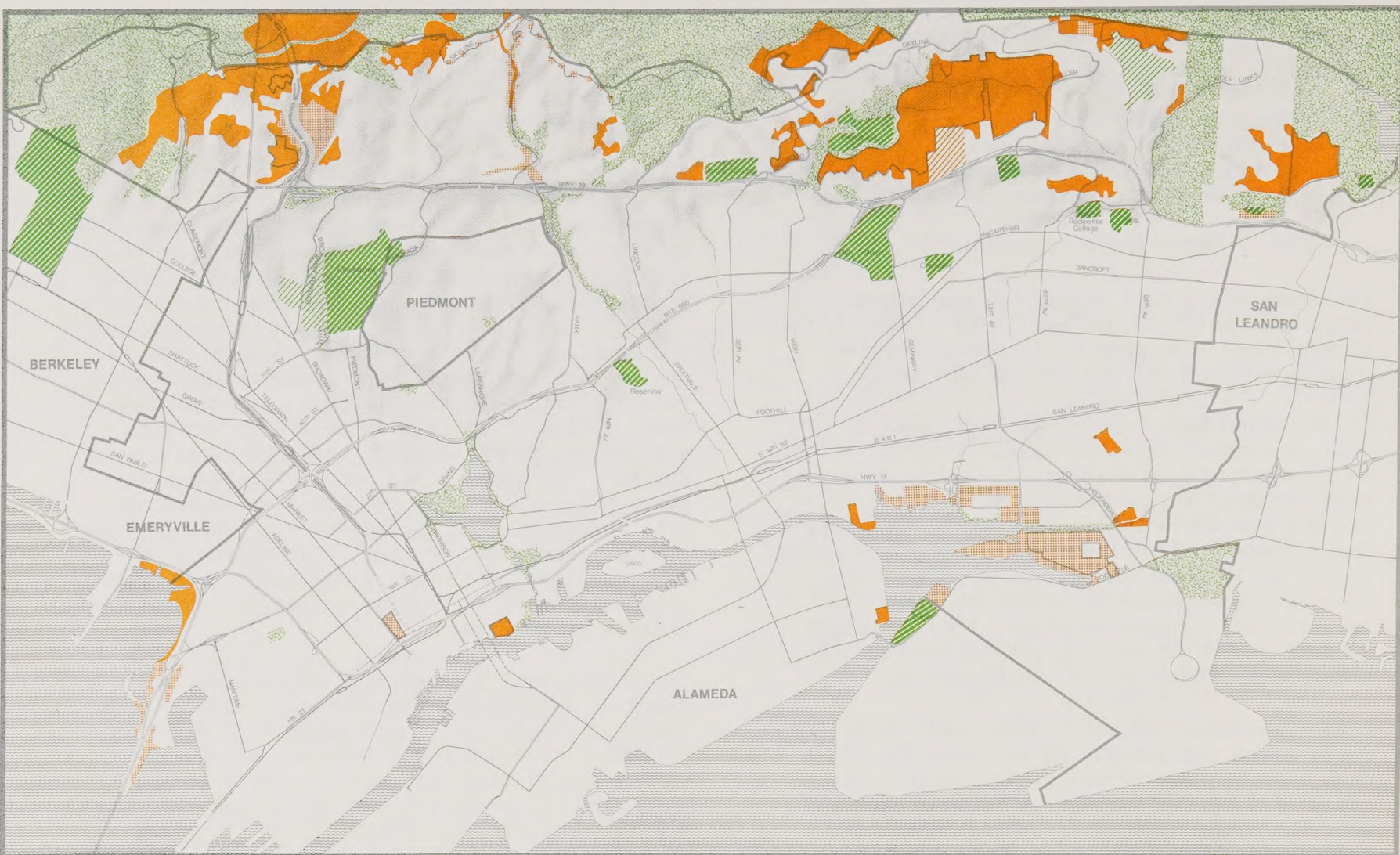
Functions

Oakland's open spaces cannot be neatly classified by function. Most of them serve more than one function--and indeed such multiple use is one indication of an open space's value.

The "outdoor recreation" function is served by public parks and recreation areas and such private facilities as the Claremont and Sequoyah Country Clubs. It is also served by the Bay. Streets and yards are also used for recreation. So, too, are some vacant lands. Fishermen and birdwatchers, for example, use some of the vacant shores of San Leandro Bay. A broad definition of recreation includes the enjoyment of scenic values, and many of Oakland's open spaces--especially in the hills or near the Bay--provides this service.

Similarly, the "preservation of natural resources" function is performed by many of Oakland's open spaces. The Bay and shoreline are of great importance, especially the marshes and mudflats at San Leandro Bay and next to the Bay Bridge approach. So, too, are the "plant and wildlife" habitats provided by University of California, East Bay Municipal Utility District (EBMUD), and other open spaces in the hills and foothills. Also of interest are the remaining natural creek sections -- as well as the various small flatland parks which serve as plant habitats, albeit largely for non-native species.

Relatively little open land is used for the "managed production of resources." There is only one active quarry, although other open spaces are underlain by minerals which it might become feasible to extract in the future. Various open tracts in the hills have been used for the grazing of horses or other livestock, and one small area near Hegenberger Road and San Leandro Creek is still being farmed. Portions of the Bay and Estuary contain marine



-  Bay or Lake
-  Civic Use¹
-  Private Recreation Area
-  Quarry
-  Publicly Owned Vacant Land
-  Privately Owned Vacant Land²
-  Private Development Proposal
-  Public Park, Recreation Area, Natural Area or Watershed³

¹with open space character

²or agricultural land

³includes public college playfields

Map 1

Major Open Spaces 1975



4000 ft.
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Base Map: © 1975 by North American Map, San Francisco, Ca. For use by City of Oakland only. Reproduction of map or portions thereof without the written permission of North American Map is prohibited.

life or mineral deposits which may be commercially significant. Many of the open areas in the hills "produce" a resource by recharging groundwater.

Many open spaces in or near Oakland serve to protect "public health and safety." These include the reservoirs and watersheds owned by EBMUD, and also many other open spaces, which are subject to various kinds of hazards. Most of the hill area along and above the Warren Freeway (and the MacArthur Freeway east of Mills College) is subject to hazards--such as fire, earthquake fault displacement, or land slippage. Other sections are also faced with various hazard situations, such as the possibility of severe earthquake damage in some waterfront fill areas. A fuller description appears in the Seismic Safety and Safety Element.

The "transportation and utilities" function is performed by the city's trafficways and railroads, as well as by utility rights-of-way like the one that enters Oakland near Sibley Regional Park. The shipping channels in the Bay also fall into this category.

Most of Oakland's sizable open spaces carry out the "urban form" function in some degree, if only by providing some noticeable break in the urban texture.

Development Possibilities

Spaces in Map 1's "Public Park, Recreation or Natural Area, or Watershed" category are the least likely of Oakland's open lands to be developed. The situation varies in the "Civic Use" category; the lands in EBMUD or other public ownership are highly likely to remain as open space, but one cannot be as certain about some of the privately owned sites under this heading. Similarly, there is no guarantee that the "Private Recreation Area" lands will remain undeveloped, although these sites are presently being used for a particular purpose. The two "Vacant Land" categories are most subject to

possible development.

VACANT LAND

Little vacant land is left in Oakland, and much of what remains may be gone soon. Map 1 shows those tracts of land for which private development projects have already been proposed. (While most of the projects in the hills are proposed as cluster-type planned unit developments leaving portions of their sites as open space, other portions would be significantly changed through grading and construction.)

Much of Oakland's vacant land is in public ownership or control.

The most significant sections of vacant land are discussed below.

Claremont Canyon/Panoramic Hill

This area centering on Claremont Avenue south of the UC campus is one of the most natural open spaces in Oakland. The topography gives the canyon a strong feeling of seclusion from the city below.

So far there have been no major development proposals here, perhaps because of a combination of factors including steep grades, fire hazard, and access problems. A deterrent to development which affects the Panoramic Hill section has been the latter's initial subdivision into small lots without regard for topography.

(Suggestions are made in Chapter 3 for preserving most of Claremont Canyon as a park.)

Tunnel Road Area

The canyon through which the Route 24 freeway runs provides a scenic gateway to Oakland for thousands of commuters. Most of it remains in open space, and some of the hillsides are heavily wooded.

Much of the land here is in public ownership, and

will largely remain open space (see Chapter 3). Of the privately owned vacant land, the westernmost tract is a part of the Hiller Highlands residential project. In 1974 a small (36-unit) planned unit development within the vacant land at the eastern end of the canyon was approved by the city. No specific proposal has been advanced for the rest of this land much of which lacks water service.

Shepherd Canyon and Skyline Corridors

In Shepherd Canyon between the Warren Freeway and Skyline Boulevard, and along Skyline between Joaquin Miller Park and Redwood-Sibley, there are numerous open sites which together form significant linear patterns. Many of the Skyline lots were bought by the City years ago for future street widening. In Shepherd Canyon much of the public land was originally acquired for a freeway which is no longer planned. In both these corridors the open sites offer scenic, recreational, and other open space values.

"Mountain Village" Area

Oakland's biggest vacant private holding is in the area between Redwood Road, Keller Avenue, the MacArthur Freeway, and Skyline. The 685-acre parcel includes parts of two main north-west-southeast ridges, a canyon between them, and a broad range of vegetation types. A development proposal for this land was considered by the City in 1972. Called Mountain Village, it proposed some 1,800 housing units mostly in townhouses or garden apartments. These units were clustered along the westerly ridge to permit big sections of the site to be retained as public or common open space. A completely new design for the site is presently being considered by the owners. It would greatly reduce the numbers of dwelling units and would involve very little regrading of the natural topography. The project would not be called Mountain Village.

Area Above Sequoyah Country Club

This stretch of vacant land extends along Skyline Boulevard for more than a mile in the section above Sequoyah Country Club. Much of it is open grassland, but some portions are shrub or woodland.

The southerly half or so is included in the Sequoyah Heights planned unit development, approved by the City in December 1974. This project would involve building 174 townhouses on a 60-acre site.

Area West of Chabot Golf Course

Considerable vacant land remains, perhaps partly because of access problems, in the area west of Lake Chabot Municipal Golf Course. This is a section of rolling hills, typically with the knolls in grassland and the slopes and canyons in scrub, chapparal, or woodland.

More than half the area is included in the proposed Chabot Hills planned unit development, a plan for which has been approved. This project would include clusters of townhouses, with substantial portions of the site being left in open space.

San Leandro Bay and Vicinity

Most of the vacant land near San Leandro Bay is controlled by the Port of Oakland. The Port has agreed to make the immediate shoreline, as well as the entire arrowhead-shaped marsh which projects into the Bay, available for part of a regional park and wildlife refuge. However, the Port intends to develop the remainder of the area west of San Leandro Creek as a distribution center. On the other side of the creek, and up to 66th Avenue, a number of vacant sites remain in the Port's Oakland Airport Business Park. West of 66th, the largest section of vacant land is owned by EBMUD, which has indicated a general willingness to make part of this land available for inclusion in the park and wildlife refuge.

Emeryville Crescent

A thin corridor of vacant land, much of it marshes, stretches along the Bay side of the East-shore Freeway and the northern side of the Bay Bridge approach. It offers a significant wildlife habitat, and allows panoramic Bay views for thousands of passing motorists. The eastern part of this land belongs to Santa Fe Transportation Company, while the western section is publicly owned. Also publicly owned is some vacant land along the south side of the Bay Bridge approach. As reflected in City, Port, and BCDC plans, the latter area--and some of the nearby water--has potential for marine terminal development.

Important Vacant Lands Just Outside Oakland

One important vacant area adjacent to Oakland lies just west of the Airport, in the Bay Farm Island portion of Alameda. Proposals have been under consideration for large-scale residential and other development of this privately-owned property. Inappropriate development of this land could hamper airport growth by greatly increasing the number of people exposed to significant noise levels, and possible hazards, from flight operations.

Also of interest are the remaining sections of privately-owned vacant land just above the ridge-line city limits. These are found on both sides of Robert Sibley Regional Park and along Redwood Road near Skyline High School. They are the only breaks in the otherwise-continuous pattern of public open space behind Oakland. Inappropriate development here could detract from the value of the adjacent parks, or interfere with possible future park or trail connections.

RELATION BETWEEN LAND CHARACTERISTICS AND USE

The traditional approach to the development of private land has been to determine which use or uses would return the highest profit to the developer. The concept of the "highest and best use" is based upon such an economic evaluation

of land.

A conservationist would find this approach unacceptable. He would say that one should focus on the land itself. He would view each open space as a resource with unique physical features. If the quality of those features were sufficiently high, he would argue that the "highest and best use" of the open space would be its permanent retention.

A reconciliation of these two approaches seems, nonetheless, possible. Each tract of land has its own unique "sensitivity" to development, in terms of hazards such as landslide potential or in terms of values such as trees or scenic quality which development may destroy. Based upon the physical characteristics of each tract, it is possible to establish a maximum desirable extent and intensity of development.

One technique for adapting development to the land is the planned unit development. This usually calls for the clustering of buildings on some portions of the property while leaving other portions of the site in open space. Such valuable features as tree clusters or streams, for example, could be preserved this way. The unbuilt areas might be common open space maintained by a homeowners' association, or dedicated as public open space.

This cluster concept is especially appropriate to development in Oakland's hills, and it has indeed figured in every recent major development proposal there.

CRITICAL AREAS AND CONCERNS

Although the conservation of open space and natural resources is important throughout Oakland, there are certain areas which are critical. Because of a combination of factors including scenic and ecological value and potential fire and geological hazards, the hills in general are such an area. The Bay (including the Oakland Estuary) is another critical area, because of its environmental and economic values. The

Bay's use and enjoyment, in turn, depend largely on good planning along the shoreline. Also of significance are those major creeks which still have some natural character. (Many other areas, in the urbanized flatlands and foothills, are environmentally significant because they are prone to such potential hazards as severe earth shaking, ground failure, or flooding. See pages 14, 15, 16, and 22--and the Seismic Safety and Safety Element.)

Another basic concern is the "conservation"--maintenance, improvement, or expansion--of parks and recreation areas in all parts of Oakland. (See Chapter 3 for policies specifically on these.) Also important is protection of the open space values of large civic uses such as Mills College.

POLICIES

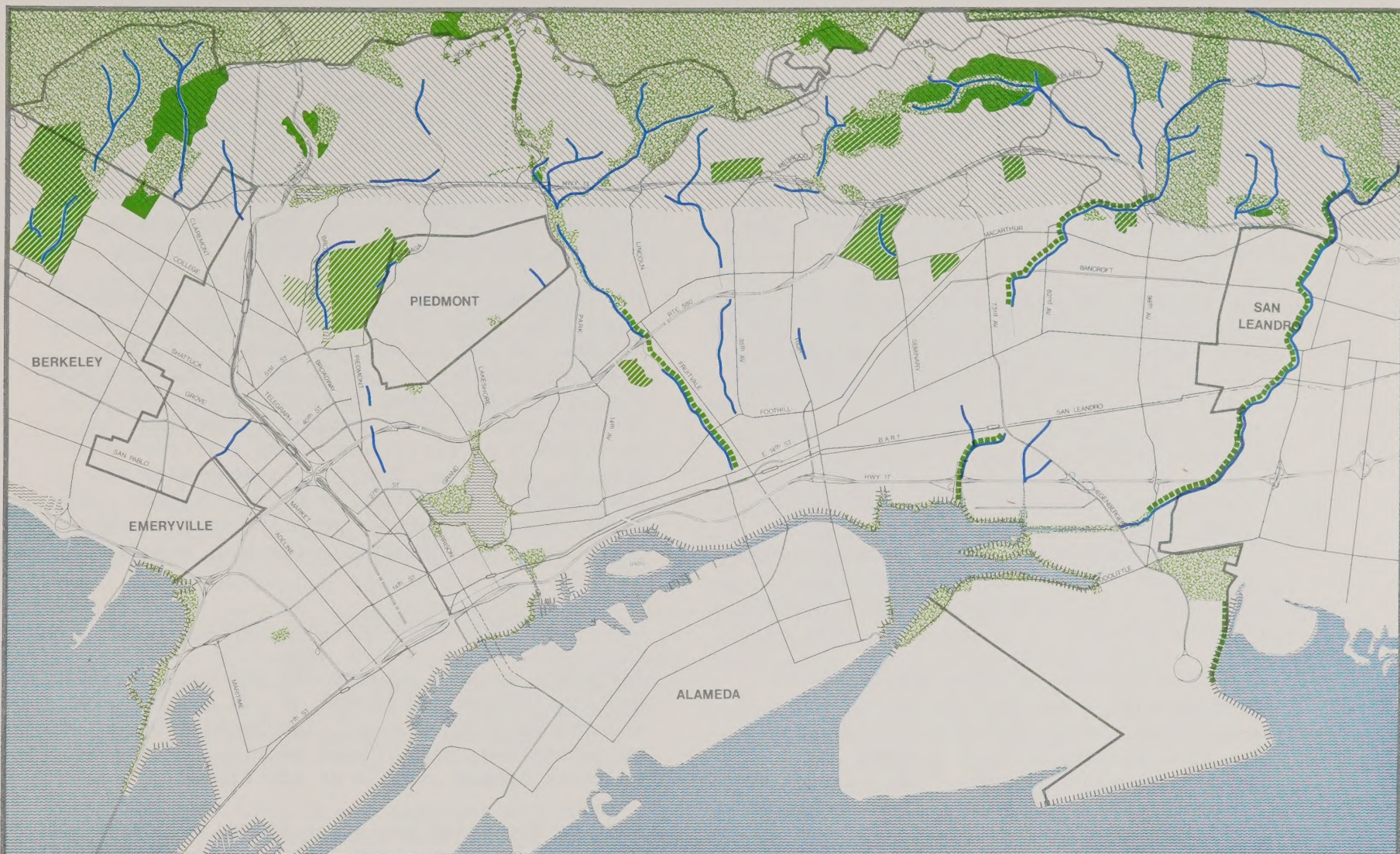
This section presents policies dealing with the general aspects of open space and natural resources. Most are verbal only, but policy 12 refers to a map which needs special discussion.

The map is intended to give a broad locational framework, but not to stand by itself. This Element's many other policies are often relevant even outside the areas shown on the map. What the map does indicate are (1) the general areas of critical concern identified above and (2) those large individual open land areas which should be set aside and which are presently identifiable. The map does not depict non-public open spaces which will be incorporated in private development projects (policy 5 calls for generous open space within all sizable developments in the hills). Nor does it show small parks and recreation areas, such as those needed extensively in the flatlands (see Chapter 3).

The following policies are recommended:¹

¹The policies followed by an "N" in parentheses are proposed new policies. Those followed by an "E" already exist in the Oakland Policy Plan. The ones followed by an "M" are proposed modifications or elaborations of existing policies.

1. *The City will employ a variety of regulatory and other means to conserve, and where appropriate expand or supplement, Oakland's open space and natural resources. In reviewing proposals which use up significant amounts of open space or nonrenewable resources, the City will require thorough evaluation of their long-term costs and benefits. (N)*
2. *The City urges other government agencies at all levels as well as private citizens, firms, and organizations to make every effort to conserve, and where appropriate expand or supplement, the open space and natural resources under their control or jurisdiction. (N)*
3. *Urban development wherever it occurs should be related sensitively to the natural setting, with the scale and intensity of development in each case bearing a reasonable relationship to the physical characteristics of the site. (M)*
4. *Except where adequate corrective measures can feasibly be taken, construction should not occur over known faults or on land subject to landslide, erosion, or flooding. The City will make efforts to obtain more information about such hazardous areas, and will consider the imposition of additional controls on development there. (E)*
5. *In all development and construction in the Hills (those areas located generally along and northeast of Mountain Boulevard) special efforts should be made to conserve open space and natural resources. Every development which occurs here on a site of substantial size should reserve the most appropriate portions as permanent open space, and these should generally add up to a significant proportion of the site. (N)*
6. *Bay fill should be undertaken only upon clear and convincing evidence that its benefits will outweigh its resulting environmental and other costs. (E)*



GENERAL AREAS OF MAJOR CONSERVATION CONCERN

- Hills
- Bay
- Shoreline
- Natural Creek System

LARGE OPEN LAND AREAS

- Park, Recreation or Natural Area, or Watershed
- Suggested Park or Recreation Area
(Further Evaluation Needed)
- Civic Use with Open Space Character
- Other Open Land (Grazing, Etc.)

Map 2

Major Conservation Areas and Open Spaces

Notes:

1. Boundaries are schematic.
2. Map does not depict open spaces incorporated in private development in hills.
3. See Seismic Safety and Safety Element for areas of earthquake and other hazards.



4000 ft.

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7. *In the development of shoreline areas, every reasonable effort should be made to provide attractive public access to the water-edge. (E)*
8. *The creek system should be capitalized on as a positive element in the physical environment. (E)*
9. *The undeveloped areas owned by the University of California and East Bay Municipal Utility District should be retained as reserves of public open space, and the attractive open space character of the major private colleges, cemeteries, and other large civic uses should be carefully protected. (M)*
10. *The City will systematically evaluate the vacant properties it owns with an eye to their possible retention as permanent open space, and it urges other governmental agencies to do the same with their vacant lands. (N)*
11. *The City strongly opposes the continued development of Bay Farm Island or other areas near the Metropolitan Oakland International Airport in such a manner as to hamper desirable growth of the Airport or to expose the occupants of such development to excessive noise levels. (E)*
12. *The map entitled Major Conservation Areas and Open Spaces schematically indicates those presently identifiable large individual open land areas which should be preserved or created, and also shows those general areas where especially close attention is needed to the conservation of open space and natural resources. (N)*

Earth Resources

Some of Oakland's most important natural assets are "earth resources"--topographical features, the underlying geologic structure, the soil

mantle, and various minerals which may be extracted for commercial purposes. Buried archaeological remains left by earlier cultures, as well as paleontological (fossil) remains, are also earth resources. Although archaeological remains are largely man-made, they should be considered in the context of the natural resources--rocks and soil--in which they are embedded.

The different earth resources have a variety of functions. Many of them have ecological value (as habitat for plants and animals) or have scenic or cultural value to man, while some have direct economic value as extractable minerals. However, one of their commonest functions is providing a physical foundation for urban development. This last function is generally discussed here, but Oakland's Seismic Safety and Safety Element provides more information on geologic and soil characteristics and, especially, hazards.

SURFACE TOPOGRAPHY AND SLOPE

Oakland's western shore meets San Francisco Bay and its interesting "arms" of San Leandro Bay and the Oakland Estuary. San Leandro Bay is quite shallow, and in some sections extensive mudflats become visible at low tide.

Next to the water are areas formed by artificial filling of former marshes or open water. The Oakland Army Base, the Naval Supply Center, the Seventh Street Terminal, and the Metropolitan Oakland International Airport--as well as many other properties near San Leandro Bay, the Estuary and Lake Merritt--are on such man-made fill.

Beyond the fill, most of Oakland's more densely developed areas are on a gentle shelf that reaches up to the edge of the foothills. Even within these "flatlands" there are significant slope differences. Near Berkeley the slope is uniform but quite noticeable, while near San Leandro the plain is almost flat.

In their central portion the flatlands are narrowed by the broad "prow" of foothills which descends from near the Warren Freeway down

to Lake Merritt and Foothill Boulevard. This section of Oakland contains many slopes of from 9 to 30 per cent and can be broadly termed rolling to hilly uplands.

Near the Warren Freeway the topography changes rather abruptly, and "the hills" begin. Far from monolithic, the hills include ridges of varying height and an interesting series of knolls and canyons. Elevations range from about 1,700 feet near the U.C. campus to roughly 1,000 feet near Lake Chabot. Slopes in these steep uplands frequently reach 30 per cent, and often much more--one reason why there is still vacant land in the hills.

In general, as land under development becomes steeper problems such as soil erosion and landslide potential increase. Landslides have occurred on various hillsides in Oakland. (However, the likelihood of landslides depends also on such local factors as underlying geology, especially the presence of fault-zone fractures which weaken the rocks; the presence of excessive underground moisture; the mass and thickness of soil deposits; the design of man-made grading or undercutting; and the presence and nature of vegetative cover.)

Slopes of less than 15 per cent are generally the most suitable for urban development, while development on those of 15 to 30 per cent can be costly. In general, slopes of more than 30 per cent are currently difficult to develop.

While steep slopes can create problems for urban development, the natural topography can also be regarded, more positively, as an invaluable scenic resource. Hills, ridges, and valleys give Oakland a dramatic skyline, a great number of vistas and landmarks, and a much-needed contrast to the man-made city. Urban development has in the past often ignored--and even radically reshaped--such features.

UNDERLYING GEOLOGY

In much of Oakland the underlying geologic

structure is more complex than the surface topography might at first glance suggest. This is largely due to past fault movements. In particular, Oakland's geology is dominated by the Hayward Fault Zone. The Hayward Fault is not just a single continuous line. Rather, the Fault Zone includes a whole system of splinter faults and breaks. The main part of the Zone runs through Oakland as a nearly straight corridor along the Warren Freeway and its easterly prolongation, although sizable branches also pass through some other areas farther to the northeast and southwest.

Earthquake damage may occur directly along a fault line itself. However, the most widespread effects are likely to be from "ground shaking", which could affect all of Oakland. The amount of damage from ground shaking will depend very largely on each area's local geologic and soil conditions. In many cases a building located right next to an active fault may withstand ground shaking better than a structure located many miles away but on the wrong kind of ground.

According to geologists, the oldest geologic formations in the Oakland area date from the Jurassic period of the Mesozoic era some 180 million years ago. These appear as outcroppings of shale and sandstone along the Hayward Fault Zone. The most recent formations, of course, are man-made earth fills.

If properly engineered, fill is generally suitable to support lighter structures. However--depending on exact composition--fill overlaying bay mud or former marshes may be highly susceptible to movement in an earthquake.

In most of Oakland between the filled areas and the Hayward Fault Zone, the underlying geology is alluvial. In the flatlands this material (depending on composition) generally has good stability under normal conditions. In the foothills it is generally suitable foundation material, at least for light structures where slopes are not steep. However, a strong earthquake could severely affect many flatland or foothill areas.

Major portions of the hills consist of undivided upper cretaceous rocks (with the notable exception of some large masses of Leona Rhyolite east of Mills College). The typical hodgepodge of rock types and tilting and warping of strata can be clearly seen along many road cuts. Stability depends on the particular formation in a given area, and it may vary from good to poor.

SOILS

Oakland's soils were formed primarily through the decomposition and erosion of sedimentary rocks. Some hill areas, though, exhibit outcrops of igneous rock pushed upwards by seismic activity, while certain shoreline areas have coarsely textured sand provided by action of the Bay waters. Some soil attributes are typical of most of Oakland. However, Oakland's soils also tend to exhibit important differences between the various major sections of the city.

Near the shoreline the soils are mostly artificial fill over Bay mud or former marshland. These fills often have drainage problems, and tend to have relatively low fertility due to wetness or texture. (However, the remaining mudflats and marshes have rich organic soils that sustain abundant food sources for fish and wildlife.) These fills typically pose significant problems for construction. In general, earthquake experts have expressed concern about the hazards associated with filled land. Even aside from earthquake situations, differential settlement or other problems may occur in some fill areas.

In contrast, soils in most of the flatlands and low foothills between the fill areas and the Warren Freeway tend to be more readily suitable for urban development. These vast stretches of alluvial soils have moderate to high fertility. In both private gardens and public parks here, the soils support a thriving variety of native and exotic, even tropical, plants. The soils in these areas are also typified by rather high corrosivity, but low erosion potential.

They are generally acceptable for foundation purposes under normal circumstances--but many of these areas are potentially susceptible to severe ground shaking or various types of ground failure in the event of an earthquake.

In the hills the sandy soils tend to be shallow, except in some canyon locations, and to have good to excessive drainage. Fertility is often relatively low. Erosion can be a serious problem where natural conditions are disturbed by grading or where slopes remain bare through the rainy season after a fire. Landslides are a possibility in many situations.

Proper soil management involves such practices as soil enrichment, drainage improvements, planting of exposed soils to control erosion--and in some cases the limitation of development on steep slopes. The benefits of good soil management can be measured in such terms as reduced landslide hazards, improved land appearance, increased plant and wildlife potential, improved water quality, and reduced expenditures for maintenance or dredging of waterways.

MINERAL EXTRACTION

The history of mineral extraction in Oakland does not include any accounts of rare or precious minerals. Early mining activities in Leona Heights were focused on extraction of pyrite (iron sulphide), which is used in manufacturing sulphuric acid. (Although this mining has long since ceased, the continued leaching of acidic substances has effectively sterilized the nearby Leona Branch of Lion Creek.)

Most of Oakland's mineral extraction activities have related to construction and development. For these an extraction site close to users is important, since hauling costs are very significant for such high-bulk, low-value materials. The abandoned quarry in the ravine below the California College of Arts and Crafts once provided a sandstone aggregate. Three other quarries located in the area of Leona Rhyolite east of Mills College, and one of these--facing the

MacArthur Freeway--is still in operation. Here some 750,000 tons a year of rhyolite (a granite-like volcanic stone) are removed for use as drain rock, asphalt aggregate, and road sub-base.

Some of Oakland's mineral resources are underwater. Submerged deposits including sand, shells, and clay have been identified in many parts of the Bay Area. These may be considered potential resources in Oakland since their future extraction has not been specifically ruled out by urban development and their use so far (except as fill material) has been marginal. For example, there are traces of sand deposits in the Bay west of the mouth of the Oakland Estuary. It is generally considered low-grade for industrial purposes, however, and the cost of dredging and washing it exceeds the cost of importing good sand from other areas. Similarly, there are major deposits of oyster shells, a source of lime for cement manufacture, southwest of the Oakland Airport. Since cement processing companies no longer operate in the Bay Area due to air quality standards, these deposits are not presently in demand.

Quarrying and mining can have a variety of harmful impacts on the environment, including air pollution from dust; water pollution from soil erosion or dangerous soluble minerals; noise pollution from blasting, heavy machinery, and dump trucks; and severe scarring of the natural topography. Dredging of submerged minerals may affect water quality and disturb fish and plant life. Yet it may be possible to accommodate at least some mineral extraction in a city by requiring adequate measures to mitigate these effects. For example, a quarry site can be planned for long-term visual acceptability, through such means as gradual benching of steep slopes and treatment with a special spray of mulch and seeds.

ARCHAEOLOGICAL AND PALEONTOLOGICAL REMAINS

The archaeological sites left from thousands of years of human settlement are among the Bay Area's most fragile nonrenewable resources. Since the California Indians kept no written

records, buried artifacts and other archaeological remains must be our primary source of information on their cultures. Such remains have been found in various places in Oakland, and further discoveries may reasonably be expected in the future.

Paleontological resources--the record of old life forms which comes down to us as plant or animal fossils--may also be valuable.

One obvious difficulty in conserving archaeological and paleontological resources is that one often does not know in advance where they are. Sites are typically discovered in the midst of a construction or grading project. However, to some extent advance research can identify such sites or at least suggest their location.

POLICIES

The following policies are recommended:

1. *Prominent topographic features should be preserved wherever feasible, and enhanced where appropriate by parks, plazas, or architectural expressions. (M)*
2. *Development on slopes of 15 to 30 per cent should generally be designed with special attention to controlling runoff and erosion and to preserving the natural topography as much as possible. Cuts and fills and the removal of desirable vegetation should be minimized. (N)*
3. *Development involving significant alteration of natural land forms or surface conditions should generally be discouraged on slopes greater than 30 per cent. Where development does occur here, graded and natural slopes should be planted to hold easily eroded soil in place and cover unsightly scars. (M)*
4. *The City in conjunction with other governmental agencies, when feasible, should utilize lands subject to severe seismic and geologic hazards for low intensity park and recreational activities or open space. (E)*

5. *Intensive urban development should be limited primarily to Oakland's flat to gently sloping plains, low terraces, and other alluvial lands where soils present few limitations to choice of planting, do not have significant erosion hazards, and are reasonably well drained. (M)*
6. *All construction immediately adjacent to a stream or body of water should be designed to ensure that soil will be well secured so that unnecessary soil erosion, siltation of streams, and sedimentation of water bodies does not occur. (M)*
7. *Bay mudflats and marshes should be kept undeveloped to the maximum extent feasible, so that the organic soils which support fish and wildlife habitats there are not disturbed. (M)*
8. *In reviewing proposed new mineral extraction activities under the Zoning Regulations, the City will take action to ensure that their operations are carefully planned to mitigate effects on their surroundings, that appropriate screening is installed, and that they are planted or otherwise treated for visual acceptability once the activity is discontinued. (E)*
9. *No major new quarrying activity should be allowed in Oakland except upon clear and convincing evidence that its benefits will outweigh its resulting environmental and other costs. (E)*
10. *Significant archaeological or paleontological remains identified in conjunction with a major construction or grading project should be preserved on-site or scientifically removed or studied. (N)*

Water Resources

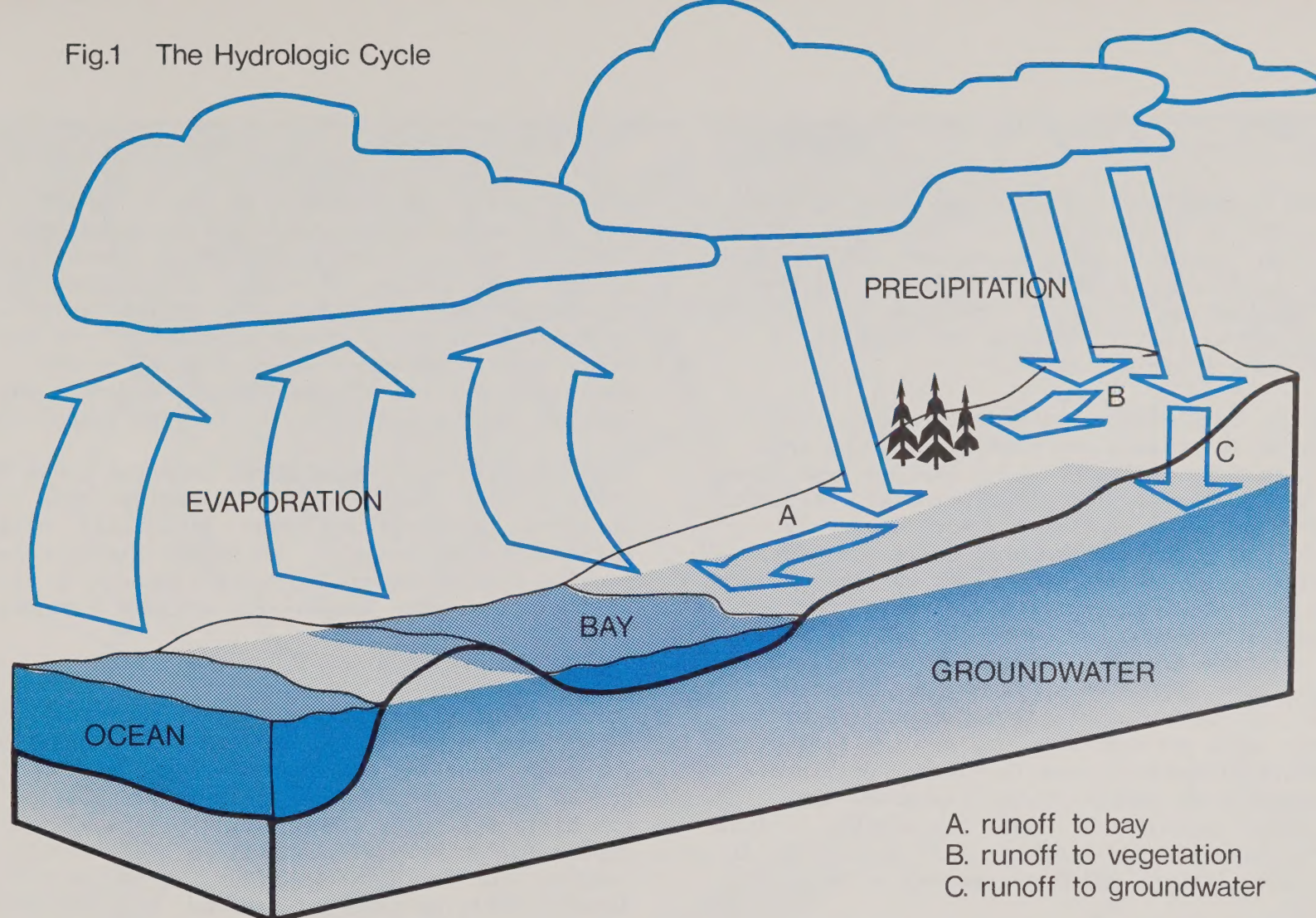
More than 97 per cent of the world's water is in the oceans. Another 2 per cent is locked up in the polar ice caps. Although in some places small amounts of fresh water are drawn from the ocean through desalination, man usually has to rely on the remaining less than 1 per cent for domestic supply. This is the fraction which, at any given moment, is in the "hydrologic cycle" --the process by which water comes first from the sea as evaporated moisture, is precipitated over the land, and then flows over and under the ground and back to the ocean. (See Figure 1.)

WATER SUPPLY

Since man started to build cities, he has had to modify the natural water cycle to secure an adequate water supply. This has certainly been the case in the Bay Area, a region which does not naturally abound with fresh water. Yearly precipitation in Oakland averages less than 24 inches--and hardly any of this falls in the dry summer months.

About 85 per cent of Oakland's domestic water is imported from the Mother Lode country in the Sierra Nevada foothills. There the East Bay Municipal Utility District (which serves most of the East Bay population north of Hayward) collects Mokelumne River water in the Pardee and Camanche Reservoirs. EBMUD then brings the water by aqueduct to the East Bay, where most of it is stored in several large "terminal reservoir" lakes. (Most of these are in the hills north and east of Oakland but one, Lake Chabot, touches a corner of the city.) EBMUD owns extensive open "watersheds" around these lakes, and the natural runoff from them contributes the remaining 15 per cent of Oakland's supply.

Fig.1 The Hydrologic Cycle



Most of the water destined for Oakland consumers then passes either through the Orinda filter plant and the Claremont Tunnel under the Oakland hills, or through another tunnel leading to the filter plant near Keller Avenue and the MacArthur Freeway. The filtered water is then piped to numerous covered reservoirs or storage tanks at high elevations, from which consumers at lower elevations are served via a network of hundreds of miles of water lines.

EBMUD estimates that existing water sources will be sufficient until after the late 1980's. At present the District's plans call for future importation from the American River, via the Folsom South Canal and a new aqueduct from the canal to the East Bay. When and if built, this project will be quite expensive--and it may have some significant environmental impacts on the affected areas.

Another potential source is recycled wastewater, even though current estimates show it to be costlier on a unit basis than the American River supply. (EBMUD performs a wastewater treatment function, for much of its service area, in addition to its water supply role.) While State regulations do not presently allow reclaimed water to be used for drinking, it can be employed for various industrial and irrigation purposes. The District is now building a "pilot" reclamation plant at its sewage treatment site adjoining the Bay Bridge approach, and operation will probably begin in the late 1970's. This pilot facility will help determine the feasibility of larger-scale reclamation.

(EBMUD also plans to recycle at least some of the process waste flows from its Keller Avenue filter plant.)

EBMUD also intends to continue exploring the feasibility of other sources--including desalination (which is quite expensive under existing technology) as well as various management and weather modification techniques to stabilize or increase yield from the existing Mokelumne River watershed.

The way to minimize the need for new water sources is to make the most of existing ones. In part this calls for using various techniques to reduce losses from evaporation at reservoirs and leaks along pipelines. More basically, perhaps, it implies the need to restrain per capita water consumption, which in recent years has been growing, District-wide, at 2 per cent annually.¹ EBMUD has begun educational efforts to persuade customers to conserve water. However, more effective steps may be necessary. Although the District has raised its rates for large users so that they now receive less preferential treatment than formerly, additional changes--even general rate increases--are possible approaches. Other steps might include local building and plumbing code changes to discourage fixtures which use excessive water.

GROUNDWATER

Another source of supply is "groundwater" which occurs in underground aquifers--water-saturated, permeable strata of rock or soil. These aquifers are fed by water percolation into the ground at so-called "recharge areas."

Wells tapping this groundwater were relied on extensively by early settlers of Oakland. However, since the quantity of water available from local aquifers typically is not very great at any one time and place and since replenishment is not immediate, groundwater does not provide an adequate supply for the Bay Area.

Urbanization can have significant effects on

groundwater. For example, the "water table" may be lowered because the replacement of open land by structures and paved surfaces drastically reduces percolation, or because of overpumping. In extreme cases groundwater depletion may contribute, in turn, to ground subsidence. On the other hand, grading may disturb or block the natural flow lines of groundwater--and this may lead to supersaturated soils and even landslides.

Although little is known about recharge areas in Oakland, they probably exist in various open sections. Recharge may occur, especially, along unlined stream channels. In return the aquifers provide a major source of water--especially important in the dry season--for Oakland's creeks.

SURFACE DRAINAGE AND THE CREEK SYSTEM

Surface drainage in Oakland is achieved through a combination of natural and man-made facilities. The most important components are the various creeks which descend from their watersheds in the hills and upper foothills. In general the creeks follow natural channels in their upper reaches; but farther downstream, in the more densely built-up parts of Oakland, many sections have been lined with concrete, rerouted, or even completely covered. The creeks are supplemented by networks of natural gullies in undeveloped hill areas--and elsewhere by hundreds of miles of man-made streets, gutters, and storm sewers.

Map 3 shows Oakland's major creeks, and also suggests in a generalized manner which sections are in a more or less natural state. These sections typically have earthen, rather than concrete, channels and trees or other significant vegetation on their banks. However, for many the term "natural" is partly a misnomer, since urbanization has had major effects on them. Development in their watersheds has usually increased both the volume and the rate of surface runoff, and in many cases the resulting increase in hydraulic force has dug the streambeds much deeper. As another result bank erosion has increased, especially where gutters and other devices concentrate the runoff at particular points.

¹ East Bay Municipal Utility District, Water Management Plan and Water Resources Criteria, October 1972, page 3.



CREEKS

- Relatively Natural Section
- ⋯ Other Open Section
- ⋮ Buried Section

HARBOR FACILITIES

- Ship or Barge Facilities
- Small Boat Facilities
- Channel

Map 3

Creeks and Harbor Facilities

1975



4000 ft.
OAKLAND
CITY PLANNING
DEPARTMENT

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In the flatlands and foothills, hundreds of buildings have been placed close to the banks so that the creek is often nearly lost to public view and many of these buildings have invaded the creek's natural flood plain. A creek may also be affected at various places by artificial constrictions such as the culverts at street crossings. As a final indignity, some people seem to regard creeks as dumps, and the result of course attracts flies and rodents.

Yet there are very important reasons to conserve, and enhance, qualities which Oakland's creeks retain. A more or less natural creek with its associated vegetation can support many desirable forms of wildlife, it can provide an important visual contrast to man-made buildings and streets, and in some cases it may serve as a linear park or trailway. Its natural qualities may even have flood control value; for example, the diversity of surface materials and water depths may act to retard water velocity.

In some sections, though, significant changes will probably be needed to reduce flood hazards. In the event of an unusually heavy storm, general flooding could result in extensive areas near various creeks. Although in most cases this would appear only as sheet flow several inches deep, major property losses could result.¹ Even more dangerous flooding could result from dam or reservoir failure or from tsunami or seiches, although these problems tend to be related to earthquake or geologic hazards rather than storms.

In recent years the Alameda County Flood Control and Water Conservation District has pursued a phased program of flood control improvements along many sections of Oakland's creeks. The program has emphasized projects

to increase channel capacity, and so far this has typically involved burying or culverting the natural stream. A number of major projects remain to be designed and built. These are expected to include important natural sections of several flatland creeks such as Temescal, Sausal, Peralta, and Arroyo Viejo.

There are numerous possible approaches to flood control. These range from the concrete culvert to a flood plain management concept which accepts flooding and keeps inappropriate construction out of the natural flood plain (although it may be too late for the latter concept in most of Oakland). Between these two extremes are such possibilities as:

1. building upstream ponding areas or check dams to reduce peak volume in the channel;
2. leaving the natural stream alone and building a bypass culvert, for storm conditions, under nearby streets;
3. using the existing open channel to carry peak flows but modifying it selectively through such devices as sandbagging or terraced retaining walls;
4. placing a culvert for peak runoff in the bottom of the streambed, then backfilling to recreate a natural-looking stream above it.

Future use of such alternatives may help to preserve the natural qualities of Oakland's creeks. Furthermore, even in a case where culverting may prove the only feasible solution, valuable existing trees can often be saved and new ones can be planted.

THE BAY AND SHORELINE

The salt-water Bay is Oakland's, and the whole region's, most important native water resource. It provides varied habitats for marine life, it offers great scenic and recreational values, it connects Oakland with major ports throughout the

¹City of Oakland, Seismic Safety and Safety Element, Oakland Comprehensive Plan, pages 6, 7, and 23.

world, and it even has beneficial effects on the climate and air quality.

The Bay's ecological, economic, and recreational values are all influenced by its varying water depths. Differing kinds of marine life inhabit marshlands, tidal flats, and relatively cold, deeper waters. Both freighters and sailboats benefit from the navigation channels in the Outer and Middle Harbor areas and those in the Inner Harbor along the Estuary. In most of these sections the design depth is maintained at 35 feet below MLLW (Mean Lower Low Water) although Airport Channel in San Leandro Bay, which is not presently used for commercial purposes, is much less deep. Aside from these dredged channels, the water in Oakland is generally quite shallow. However, there are some deep places such as borrow areas (areas where material has been dredged for use as fill).

Actually the water depth fluctuates, to varying degrees, four times daily because the Bay, connected with the Pacific Ocean, undergoes significant tidal action. The tidal changes generate currents of up to 7-1/2 miles per hour where Bay and Ocean meet at the narrow Golden Gate. The tidal action serves to "flush" the Bay system and bring in new water from the ocean. Earth particles, eroded by hydraulic action, may become suspended in these fast currents--and then settle out into shoals where the velocity is slowed by solid barriers or other causes. The same thing happens where some fresh-water creeks deposit their silt when they encounter slower moving water in the Estuary. Most siltation, though, results from deposition of silt which has been placed into suspension by wind-generated wave action on mud flat areas. Siltation poses a continuing threat to Oakland's shipping channels.

The erosive effects of water action, and man's reactions to it, are most visible along the shoreline itself. This varies from more or less natural sections where mudflats rise gradually to marsh and dry ground, to steeper slopes where rubble or rip-rap is used to keep soil in place, to abrupt concrete retaining walls or

bulkheads.

Shoreline treatment largely depends, of course, on land use. Ship terminals line Oakland's Outer and Middle Harbors and occupy some sections along the Estuary. The southeastern part of Oakland's shoreline is occupied by Metropolitan Oakland International Airport, which takes advantage of the Bay's open space to reduce the noise impact and hazards usually associated with airports. The rest of the shoreline is largely taken up by industrial uses--and some of them are industries which have no real need for water access. Such industries can shut out other uses which could take much better advantage of valuable shoreline locations--public and commercial recreation, for example. Although in recent years some places along the waterfront have become accessible to the public (largely due to BCDC and Port efforts), much of the access potential remains unrealized.

The Port of Oakland has been actively expanding and modernizing its harbor facilities, with particular emphasis on containerized freight operations. Wherever possible, the Port envisions doing this through redevelopment of obsolescent terminals and lower-value industries. However, the Port expects that such expansion may eventually require some Bay fill. It has earmarked certain water areas directly north and south of the Bay Bridge approach for this purpose. In addition, the Port's draft Master Plan for the Airport shows a schematic, long-range proposal for a new runway in the Bay southwest of the present main runway.

Some future filling may indeed be justified because of the economic benefits, to both Oakland and the Bay Area, from shipping and airport expansion. However, the benefits will need to be weighed against the full range of project costs--and here it must be emphasized that any amount of fill may in some degree impair the environmental values provided by the Bay.

WATER QUALITY

Modern industrial civilization has made greatly increased use of both fresh and salt water for

disposal of waste materials, and man has often expected too much of water's ability to absorb and disperse these. As a result many bodies of water have been seriously degraded. Although governmental efforts in the Bay Area have recently brought some significant improvements in water quality, many problems remain.

One major cause of pollution in the Bay has been the discharge of inadequately treated municipal sewage. In extreme cases this can cause heavy algae growth, kill fish, even make the water odorous and unsightly. EBMUD's existing facility near the Bay Bridge which treats Oakland's sewage is of the primary type, and removes only some 60 per cent of the unoxidized wastes. However, EBMUD is now building an adjacent secondary treatment plant which will take out most of the remaining unoxidized wastes.

One major problem has been the periodic release of raw effluent into the Bay or Estuary when interceptors or treatment plants are overloaded by storms. Large amounts of stormwater reach them due to infiltration (or illicit connections) into pipes and because some areas still have combined storm and sanitary sewers. Oakland has replaced most of its old combined sewers with separated lines, though there is still some work to be done. EBMUD has plans for a back-up plant at San Leandro Bay which will temporarily store and/or treat storm overflows. Disinfected overflows from that plant may eventually be piped into the giant interceptor and outfall which is proposed by the East Bay Dischargers Authority to convey the treated sewage of southwestern Alameda County to deep Bay water west of Oakland Airport.

Even separated stormwater runoff (which now gets no treatment) probably significantly affects water quality due to the many substances it washes down from streets, yards, etc.

In areas with individual septic tanks, contamination of nearby groundwater and streams is a possibility. Only a few such locations remain

in Oakland, though there are others in adjacent hill sections. Another special concern involves discharges from boats, houseboats, and ships.

Certain pollutants, such as toxic metallic substances, can sneak through treatment plants and then--via the food chain--reach dangerous concentrations in the flesh of marine creatures, birds, and humans. Such materials may also have collected at some places in the Bay's bottom mud, from which they can be released either by natural hydraulic action or (unless adequate precautions are taken) by dredging. For pollutants like these, controls at the source are crucial: controls directly restricting discharges into waterways, sewers, or the ground.

The sediments from erosion can also hurt water quality. For example, they can impair some marine life by reducing sunlight penetration, and they can entrap and carry other pollutants.

Development over or next to streams or other bodies of water can quite significantly affect water quality. Without due precaution, problems may result such as soil erosion, direct discharge or ground leaching of harmful substances, and accidental spills. Shipping accidents in open waters are another source of fuel spills.

A special issue is the persistent contamination in Lake Merritt, a body of water with complex sources. The City, the Flood Control District, and the County Health Care Services Agency have been working together to determine causes, responsibilities therefor, and remedies.

POLICIES

The following policies are recommended:

1. *The City urges the East Bay Municipal Utility District to maintain an appropriate balance between efforts to develop new sources of water supply and efforts to conserve existing supplies. (N)*
2. *To the maximum extent feasible, new urban development should be designed to incor-*

porate the natural drainage patterns, and to avoid impairing important groundwater recharge areas. (E)

3. The creek system should be capitalized on as a positive feature in the physical environment. (E)
4. The City will insist upon flood-control designs which preserve trees and the natural character of the creeks to the maximum extent feasible. (E)
5. Bay fill should be undertaken only upon clear and convincing evidence that its benefits will outweigh its resulting environmental and other costs. (E)
6. The near-total industrial hold over the waterfront should be loosened and recreational or open space (and in some cases residential) use made of much of it. (M)
7. In the development of shoreline areas, every reasonable effort should be made to provide attractive public access to the water-edge. (E)
8. Marine and air-terminal capacity should be developed consistent with city, regional, and state-wide benefits. (E)
9. Harbor and ship channel dredging should be conducted so that spoils are removed in a manner and to an area in conformance with Federal and State requirements. (E)
10. The City supports the adoption of reasonable policies and efforts to protect and enhance water quality. (E)
11. Development over or immediately adjacent to any stream or body of water should be designed to ensure that water quality is not significantly affected in an adverse manner by soil erosion; by direct discharge of potentially harmful substances; by ground leaching from storage of raw

materials, fuel products, or wastes; by floating debris; or by nuisance runoff from wash-down facilities. (M)

12. The City will continue to undertake or encourage projects designed to achieve, at the earliest feasible date, complete separation of all sanitary sewer and storm sewer systems in Oakland and elimination of infiltration of groundwater and illicit connections into the sanitary sewer systems. (E)

Plant and Animal Resources

The many benefits plants and animals contribute to our environment are too often overlooked or taken for granted. In aesthetic terms, plants provide sorely needed contrasts with the city's harsh, glaring surfaces. The chance to study growing plants, and see wildlife in a natural setting, has both educational and recreational benefits. Every living organism helps to support other organisms--and many forms of life more or less directly provide food to man. Plants and animals supply nutrients to, or condition, the soil. Vegetation intercepts much of the rainfall, slowing short-term runoff and reducing soil erosion. Vegetation even affects climate and air quality: it releases beneficial oxygen and moisture into the air, it tends to modify temperature extremes, and trees offer shade and can slow the wind.

A philosopher might add that the everyday presence of plants and animals reminds anthropocentric man that he shares this world with many other living things, and that without them he could not survive.

SOME BASIC ECOLOGICAL CONCEPTS

Literally thousands of living species, from redwood trees to protozoa, are represented in Oakland. To discuss them all would be an impossible task. Fortunately, ecology--the science dealing with how living things relate to each other and to their environment--provides some useful concepts that make the job easier.

The places where plants and animals live can be classified into broad "habitat" types according to such things as availability of water, exposure to sun and wind, and soil characteristics. Because of these environmental factors, each type of habitat supports a different kind of natural plant and animal "community." Each community is an amazingly complex society in which each species depends for survival on the others, either directly or indirectly. The plants provide food for the animals, animals in turn are a food supply for other animals, scavengers provide community sanitation, predators and disease agents prevent overpopulation, and each plant and animal fills a niche of its own.¹

The very complexity or "diversity" of a community is a major indicator of its health and stability. The more kinds of plants and animals are present, the less damage will be done by such events as epidemic diseases and the less danger there is of rampant increases in individual species.

In many cases the boundary between adjacent communities is quite blurred. (Also, many animals roam freely between various habitats, while some plant species may appear in several different communities.) Situations where different types of plant communities are mixed together--for example, grassy clearings alternating with woodland--are called "edge" or "ecotone." For many types of animals these situations provide the best conditions, and their highest population densities tend to occur here.

Transition between communities also occurs over time, at least until a more or less stable "climax" community is formed. The replacement of one community by another is called "succession." It may result from such natural processes as the gradual silting of a marsh, or it

may be triggered by man-made events like the diversion of a stream.

AN OVERVIEW OF OAKLAND'S NATURAL COMMUNITIES

When gold was discovered in California in 1848, Oakland's habitats were still largely unmodified by man. Along the shoreline, marshes covered several times their present extent. The flatlands, foothills, and hills supported mostly open grassland and scattered sections of drought-adapted oak woodland, though other native trees and shrubs clustered in canyons, along streams, and on some slopes. Stands of redwood grew in some of the deeper canyons and in the vicinity of Joaquin Miller Park, but most of the area's redwoods were in the sheltered habitats east of the present city limits, in and around today's Redwood Regional Park. Over the next several decades, lumbering removed most of the original redwoods. During the same period the flatter areas of grassland and oak woodland gave way to urban development, while the portions in the hills remained unbuilt on until at least 1900. However, around the turn of the century many thousands of non-native eucalyptus trees and conifers began to be planted in parts of the hills--partly to improve the area's appearance and partly for lumber speculation. The present wooded character of the northerly hills results from these efforts. Before and since then, the spread of new plants and trees has continued, through planting on private property, through public landscaping of streets and parks, and through the natural ecological processes of dispersal and succession.

Today, despite a century and a third of urbanization, there are still within the city limits a surprising variety of natural communities. As located in generalized form by Map 4, these include both salt-water and fresh-water communities and a broad range of terrestrial (land) communities.

Of special interest are those undeveloped open spaces which are big enough and physically

¹Arthur C. Smith, Introduction to the Natural History of the San Francisco Bay Region (Berkeley: University of California Press), 1959, p. 32.



TERRESTRIAL COMMUNITIES

- Woodland
- Brushland
- Grassland
- Urban (large landscaped areas)

FRESH-WATER COMMUNITIES

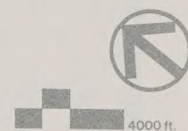


SALT-WATER COMMUNITIES

- Salt Marsh
- Tidal Mudflat
- Open Water

Map 4

Major Plant and Animal Communities, 1975



**OAKLAND
CITY PLANNING
DEPARTMENT**

Base Map: © MCMLXXXI by North American Maps, San Francisco, Ca. For use by City of Oakland only. Reproduction of map or portions thereof without the written permission of North American Maps is prohibited.

diverse enough to contain a whole complex of natural communities, and demonstrate their subtle interactions. Examples include San Leandro Bay's marshes and other habitats and the Mountain Village area's varied slopes and exposures.

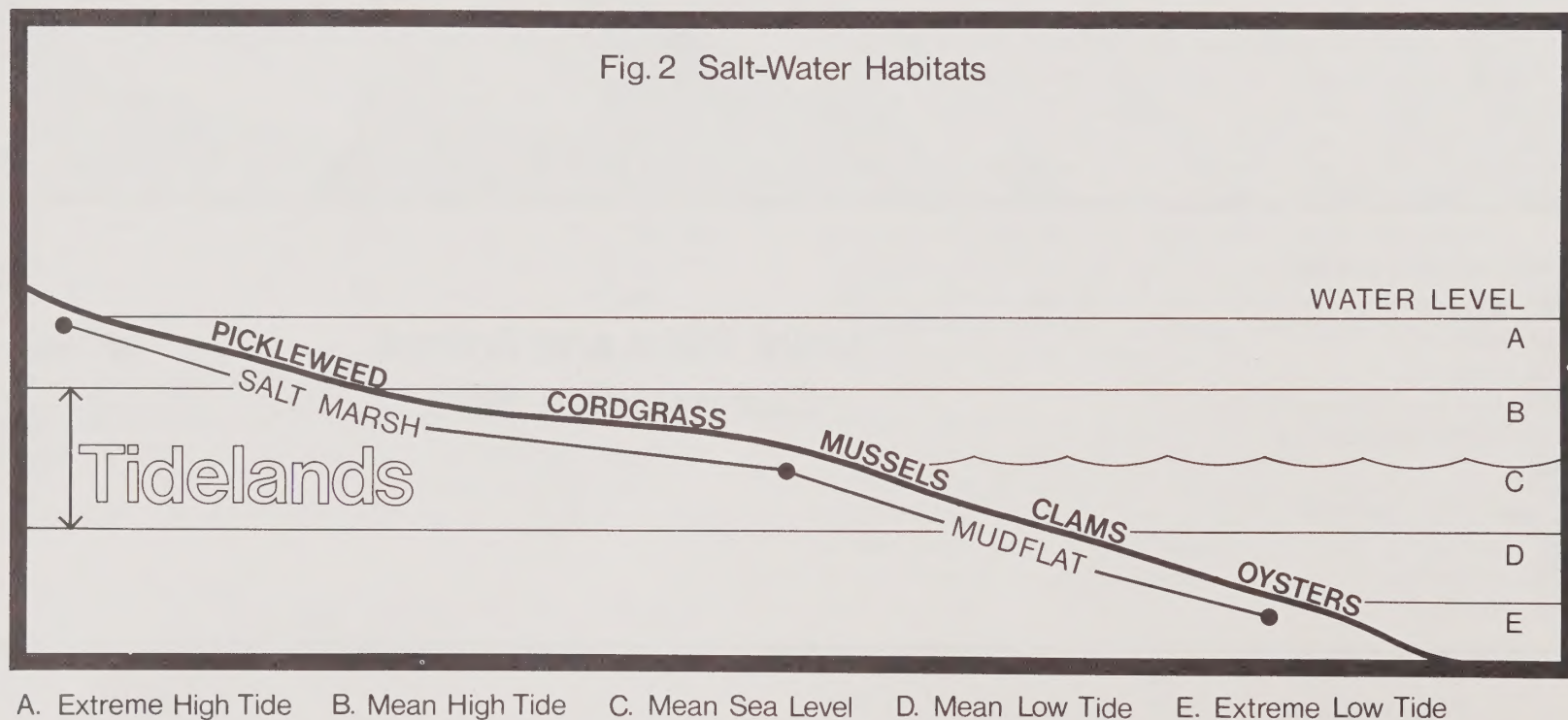
The relative values of Oakland's biotic communities will depend on which criteria are used. Possible criteria include aesthetic value; recreational potential; fire risk; and local rarity (chaparral, for example, may be valuable to Oakland because it is quite scarce here). Judging plant communities by their ability to support numerous and varied animals, the salt-water marshes and mudflats are extremely valuable. By the same test some native woodlands may be of comparable value--while some others, as well as the Bay's open water, should rank fairly high. Chaparral is quite valuable for wildlife, but grassland (despite its importance for species such as hawks) must rank considerably lower overall. In general, areas consisting mostly of non-native species often have low wildlife value as many native animals have not adapted to them.

However, it should be emphasized that every type of community is valuable in some way.

Natural communities can also be compared in terms of their adaptability to development. Some resilient communities like oak woodland or redwood forest can accept a sensible amount of man-made development within them, and the addition of exotic plant species. Other communities are much more fragile. Chaparral and grassland are easily destroyed by development.

SALT-WATER COMMUNITIES

Oakland's salt-water areas are integral parts of the complex eco-system formed by San Francisco Bay. (In a sense Lake Merritt belongs to this system, as salt water enters it through the Lake Merritt Channel; the Lake's water, though, is brackish rather than salty and tributary creeks bring varying inflows of fresh water.) The Bay's varied habitats include both deep and shallow open water and (where the slope is gradual enough) tidal mudflats and marshes:



Although occupying only a small proportion of the total Bay, marshes and mudflats are of crucial ecological importance. To quote BCDC's Bay Plan, "Most marine life in the Bay depends directly on the marshes and mudflats for its sustenance or indirectly depends on them by feeding upon other marine life so nourished."¹

In aggregate, the various salt-water habitats support a great variety of fish, shellfish, water birds, and other marine life--and they have the long-range potential to support even more. That potential has in the past been impaired by water pollution, as well as by the destruction of key habitats through filling or diking.

The most important category of fishes in the Bay is the anadromous group, which includes striped bass, sturgeon, steelhead trout, and shad. These spend most of their lives in the open ocean, but pass through the Bay to go up freshwater rivers or creeks to spawn. Also found in the Bay waters are the pelagic bait and forage fishes, which are eaten by anadromous predators. Of these the Pacific Herring is the most important; it spawns in the Bay and is used for bait by anglers. Shoreline anglers also use top smelt and jack smelt. Sardines are present in the Bay to a limited extent, while anchovies are plentiful.

With improving water quality in recent years, sport fishing has staged a comeback, though its potential is limited in part by restrictions on public access to the shoreline and by the shortage of fishing piers.

Shellfish harvesting, once of great commercial significance, has been all but eliminated within the Bay system because of pollution.²

¹San Francisco Bay Conservation and Development Commission (BCDC), San Francisco Bay Plan, January 1969, p. 11.

²State Water Resources Control Board and Regional Water Resources Control Board, San Francisco Bay Region (2), Tentative Water Quality Control Plan, San Francisco Bay Basin (2): Abstract, 1974, p. 1.

Yet recent improvements in water quality seem to have permitted shellfish increases and may eventually reduce contamination to a level where shellfish will again be safe for human consumption. Some species of clams exist in intertidal zones in sufficient numbers to be considered potentially harvestable. Various types of oysters and mussels are quite abundant,³ as are shrimp. The market crab used to be one of the most valuable shellfish, but little is known of its present distribution.

Water quality improvements also may have contributed to recent increases of such mammals as the harbor seal and the sea lion.

The Bay also provides habitats for many species of birds. For migratory ones it serves as an important stop along the Pacific Flyway. Two officially recognized water fowl refuges are in Oakland, at Lake Merritt and San Leandro Bay.

Salt Marshes

The salt marshes in Oakland--at San Leandro Bay and at the Emeryville Crescent--are tiny compared to those in the South Bay and Suisun Bay. Despite their smallness, however, they support great quantities of wildlife, and they could become great educational resources because of their nearness to the urban center.

At each location, the portions of marsh closest to permanently dry land are characterized by pickleweed, while the portions closest to deep-water are typified by cord grass. Both kinds of marsh provide abundant food or shelter for wildlife. Typical species include the avocet, the marsh hawk, and the vagrant shrew.

Salt marshes are among nature's most productive communities. Cord grass, for example, has seven times the energy-generating capacity, or food value, of an equal acreage of wheat.⁴ Vast

³Op. cit., p. 6.

⁴BCDC, San Francisco Bay Plan, p. 11.

amounts of nutrients from the marshes are washed by the tides out to nearby mudflats and shallows, to help support plants and animals there.

Mudflats

Two important areas of intertidal mudflat exist in Oakland. As one would expect, they are off-shore from the marshes at San Leandro Bay and the Emeryville Crescent.

Though such mudflats may seem unattractive to some people, their ecological role is crucial. They are the most important feeding areas of all for many fish, shellfish, and birds. At high tide striped bass, sturgeon, and flounders move in to feed on the many mollusks, crustaceans, and smaller organisms--and swimming or diving birds arrive to catch the fish. As the tide recedes, longer-legged shorebirds such as egrets, avocets, godwits, and stilts come to probe with their long beaks. When the mudflats are fully exposed, smaller, short-legged birds move in and feed on the small organisms.

The mud algae, exposed as they are to abundant sunlight and alternating air and water, produce and expel significant amounts of oxygen into both media. This in turn helps to support fish and neutralize water pollutants.

Open Water

Areas of open water provide habitats for many forms of life. Some of these are found only on the bottom, or only at or near the surface.

The Bay bottom ranges from mud to gravel and from shallow-and-warm to deep-and-cold. Where hard materials exist, immature oysters and clams may attach themselves. Bottom fish include flounders and rays.

The surface waters are frequented by swimming and diving birds, and certain marine mammals, who catch the fish there and may also rest on the water. Among the birds on the Bay (and on Lake Merritt) are seagulls, diving and dabbling ducks,

grebes, loons, geese, and pelicans.

FRESH-WATER COMMUNITIES

Oakland's fresh-water communities are found in the city's creeks, in Lakes Chabot and Temescal, and to a degree (despite its mix of salt water) in Lake Merritt.

Despite some fish stocking experiments, the aquatic populations in most of the creeks are generally rather limited in density and variety. Typical inhabitants are water snails, frogs, and water insects. Fresh-water fish are not common, although some anadromous fish work their way up from the Bay. The relative poverty of aquatic life seems to be due largely to water pollution of one sort or another.

Both Lake Chabot and Lake Temescal are stocked (by the East Bay Regional Park District and the State Department of Fish and Game) with crappie, bass, catfish, and trout for recreational angling. Fishermen may also use the City-owned Leona Trout Farm, where two flycasting pools are provided free.

Fresh-water marsh communities of moderate size can be seen at all three lakes. Typical plants include tule, sedge, and rush. Characteristic animals may include the red-winged blackbird, garter snakes, and diving beetles.

TERRESTRIAL COMMUNITIES

Table 1 names Oakland's major terrestrial communities, and gives some examples of typical species found in each.

All these communities include, to varying degrees, non-native species which man has introduced. In fact three broad community types are imported: Monterey pine forest, eucalyptus forest, and of course urban. However, some native species are found even in those three (sometimes playing an important part), and in most of the other communities they are in the dominant role.

TABLE 1

MAJOR TERRESTRIAL COMMUNITIES AND SOME
TYPICAL SPECIES IN EACH: OAKLAND, 1975

COMMUNITY		EXAMPLES OF TYPICAL PLANTS	EXAMPLES OF TYPICAL ANIMALS
Woodlands	Oak Woodland	Coast Live Oak Hazelnut Poison Oak	Acorn Woodpecker California Ground Squirrel California Oak Moth
	Broadleaf Evergreen Forest	California Laurel (Bay) Madrone Coast Live Oak	White-Footed Mouse Black-Headed Grosbeak California Slender Salamander
	Redwood Forest	Coast Redwood California Huckleberry California Sword Fern	Winter Wren Trowbridge Shrew Ensatina
	Riparian Woodland	Arroyo Willow Alder Creek Dogwood	Downy Woodpecker Raccoon California Newt
	Monterey Pine Forest	Monterey Pine Monterey Cypress Toyon	Fox Squirrel Raccoon Chickadee
	Eucalyptus Forest	Eucalyptus Poison Oak California Blackberry	House Finch Hummingbird White-Footed Mouse
Brushlands	Baccharis-Poison Oak Brushland	Baccharis Poison Oak Coffeeberry	Bewick Wren Brush Rabbit Gopher Snake
	Chapparal	Manzanita Chamise Jimbrush	Wrentit California Thrasher Dusky-Footed Wood Rat
	Coastal Scrub	Baccharis California Sage Brush Bush Monkey Flower	Bewick Wren Brush Rabbit Western Fence Lizard
Grassland		Wild Oats Bromes Barleys	Western Meadowlark Black-Tailed Jack Rabbit Gopher Snake
Urban Area		Great variety of introduced trees, shrubs, and garden flowers	English Sparrow Pigeon House Mouse

Source: Adapted (with additions) by City Planning Department from Arthur C. Smith, Introduction to the Natural History of the San Francisco Bay Region (copyright © 1959 by The Regents of the University of California, reprinted by permission of the University of California Press).

The spatial distribution of these communities is partly due to the pattern of urbanization and of large-scale tree planting by man. However, it also results from local variations in moisture, temperature, wind exposure, and soil conditions, and from past events like fires. The seemingly confused mosaic of grassland, brush, and woods in parts of the southeastern hills can be explained largely by the interplay of these natural factors.

Woodlands

Most of the city's woodlands are in the hills. Here, under natural conditions, they appear typically in relatively moist, sheltered, and shaded habitats such as canyons and some north-facing slopes. In some of the wetter of these habitats one can find broadleaf evergreen forest, which is often dominated by bay trees; examples include parts of Shepherd and Claremont Canyons, and portions of the Mountain Village canyon.

Oak woodland usually appears on somewhat drier slopes; examples can be seen above the University of California, on the slopes near Keller Avenue at the southeast end of the Mountain Village area, and in much of Knowland Park. A few sections of redwood forest occur in Dimond Canyon, Joaquin Miller Park, and Leona Canyon. So-called riparian woodland occurs along creeks, especially those with year-round flow, and follows some of them down into the foothills and even flatlands.

Man has significantly increased the amount of woodland in the hills by establishing great plantations, mainly of eucalyptus and of Monterey pine and related species. These typify many undeveloped and low-density residential areas from the vicinity of Tunnel Road on the north to Joaquin Miller Road on the south. (The eucalyptus generally is concentrated at the higher elevations here, though it also appears in smaller clusters within the Monterey pine forest and elsewhere.)



Fig.3 Typical Natural Vegetation Pattern in Southeastern Hills

Although woodlands are dominated by trees, usually they also have "understories" of shrubs and/or herbaceous plants. Understory conditions depend heavily on the density and nature of the tree canopy. A dense canopy may cut off sunlight for the plants below. Also, some tree species may have an allelopathic effect; that is, each tree emits chemicals into the soil which discourage competing plant growth immediately around it. The denser plantations of eucalyptus and Monterey pine have poorly developed understory vegetation.

Although they are not native to Oakland, the Monterey pine, the related Bishop pine, and some other introduced conifers seem quite at home. The Monterey cypress is a drought-tolerant tree which is slightly more susceptible to disease when away from its native haunts, but it is still generally suitable in Oakland.

Many species of eucalyptus also do well here. However, the red gum species (*E. rostrata*) is especially cold-sensitive. The killing frost of the winter of 1972-73 left many large patches of hillside tinted with brown, dead foliage: a highly visible reminder of how common this eucalyptus species had become.

Brushlands

Brushlands are found in the hills in many kinds of locations--slopes of varying steepness and orientation, ravines, and sometimes ridges. In certain cases it may be surrounded by grassland or woodland, or form a transition zone between the two. In places the shrubbery continues into the adjacent woodland as an understory.

Coastal scrub tends to be in the drier places. It is low-growing and rather open, and many grasses and forbs are present in the community.

In contrast, chaparral forms a dense stand of shrubs which is practically impenetrable. It appears in Oakland in a few smallish pockets on relatively dry sites, including several in the

Mountain Village area. With its low moisture and high resin content, chaparral poses the highest fire risk of any local plant community.

Baccharis-poison oak brushland also represents serious fire hazards. It is fairly dense at maturity, thereby largely excluding a herbaceous cover below the shrub canopy. It has been spreading rapidly in the Berkeley-Oakland Hills in recent decades. Lately it has been thriving in some areas where eucalyptus trees have been removed.

Grassland

In the hills, grassland occurs especially on west-facing slopes and on knolls or ridgetops.

It is dominated by a mixture of annual species which originated in the Mediterranean region, and which have replaced native perennial grasses over the last two centuries. Wildflowers are common, while scattered shrubs such as baccharis (coyote brush) are often present.

Sections of grassland can be found at certain places along the shoreline, where some are a significant adjunct of the Bay eco-system. Such areas provide resting space for water birds that feed in nearby mudflats or marshes, or dry-land nesting sites.

Urban Area

The urban plant and animal community is not so much a natural unit in itself as a patchwork of mostly small-scale grasslands, brushlands, and forests, all highly managed and even manicured and with heavy emphasis on imported plant species. Lawns are domesticated miniature grasslands, shrubs represent brushland, and the trees on streets and in private yards make up a sort of discontinuous forest. Only in parks and such open spaces as cemeteries or college campuses do these approach the scale of major natural communities.

Certain animals are enthusiastic, and sometimes troublesome, city dwellers. Examples include pigeons, European rats, and house flies.

Trees are scarce in many built-up sections of Oakland, particularly in the flatlands. Trees of significant size are especially rare, and this makes the scattered large trees that do exist all the more valuable.

RARE AND ENDANGERED SPECIES

An endangered species is one whose prospects of survival or reproduction are in immediate jeopardy. A rare species is one which has small numbers throughout its range, and which may become endangered if environmental conditions for it worsen. Some plant and animal species are truly threatened on a world scale, while others may be plentiful in other parts of the world but threatened locally.

One rare variety of manzanita has been detected only in the Oakland-Berkeley hills and on Sobrante Ridge near Richmond. Western leatherwood, a rare shrub associated with the mixed chaparral and oak woodland communities, appears in the upper reaches of Claremont Canyon.

The Alameda striped racer, a snake associated primarily with chaparral, is on the California list of rare and endangered wildlife--and it has been observed in Oakland.

Of the several birds which appear on the California list, three have been observed at San Leandro Bay. These are the California clapper rail, the brown pelican, and the migratory California least tern.

Only one mammal, the endangered salt marsh harvest mouse, appears on the Bay Area list. It has been seen in the extensive marshes of the South Bay, and it may or may not be present in Oakland's relatively small marshes.

PROBLEMS ASSOCIATED WITH URBANIZATION

It is apparent that the construction of a city has major impacts on the natural vegetation and wildlife. What may not be so well known is that many of the resulting ecological changes may eventually cause problems, such as erosion or brushfires, for man as well.

The most direct effect of urbanization on plants and animals is their displacement through the building, filling, or paving over of former habitat. Other major effects, however, may be indirect and less obvious.

In general man tries to simplify the environment--to reduce its natural diversity--so as to suit his own needs. He plants his farms or gardens with only a few species, and diligently removes weeds and unwanted animals. Unfortunately, he often alters the environment in this way without understanding the complex relationships among living things. By removing a vital link from the food chain he may create instability for the remaining species, and make them more susceptible to unwanted changes.

For example, the black-tailed deer has become much more numerous in the hills since man has reduced its natural predators. As a result oak seedlings and other native plants have been overbrowsed, and many complaints have been voiced about deer invading private gardens. Similarly, one reason why poison oak has been spreading so rapidly is that urbanization has impaired other plant species which would normally compete for space with the poison oak.

On the other hand, man introduces many non-native species, and these can seriously upset the natural equilibrium. For example, the eucalyptus grows faster than the native oak, bay, or madrone, and dense stands of it can cut off sunlight from lower growing plants. The introduction of thousands of domestic dogs and cats is another example; these imported predators

are a severe threat to small animals near residential areas.

A simplified, artificial landscape requires more intensive management. To maintain it, man uses chemical fertilizers, mechanical devices, and poison sprays--and these can have effects (often unforeseen) on water quality, soils, plants, and animals. Dangerous pesticides and herbicides, for example, may be spread by water runoff or wind, or in the tissues of browsing or insect-eating animals. (Vegetation may also be hurt by the air pollution that urbanization, in general, brings.)

Irrigation of lawns and gardens can have major effects. It can cause drought-adapted native plants, especially oak trees, to be afflicted by root fungus. Irrigation at ridgetop developments can have an especially significant impact, since runoff may alter soil moisture all the way down the slope below.

Changes at the canyon bottom can also have a major effect. In large open areas in the hills, up to two-thirds of the wildlife may be concentrated in the bottom and along the lower canyon walls.

Fire hazard is not solely due to urbanization. Many of Oakland's native plants were adapted to the natural and frequent occurrence of fires in the long dry seasons. Urbanization has, though, aggravated the situation in several ways. The presence of many thousands of people and their machines increases the chance of a fire's starting--while it also increases the possible gravity of the damage. In addition, man has planted vast areas in the hills with new trees, some of them very densely so that a great amount of litter has accumulated on the forest floor. Some of the new non-native vegetation is poorly adapted to local conditions--notably the red gum eucalyptus, which was killed in great numbers in the recent freeze and thus produced an enormous build-up of dry, easily ignited "fuel." Also, fire control in the past has led, ironically, to a build-up

of ground fuel within communities such as brushland where it would normally have been consumed by occasional fires. Because of these and other factors, nearly all the land above the Warren Freeway is considered fire hazardous.

The removal of plant cover by fire (or, for that matter, by grading) may in turn lead to serious soil erosion on slopes.

MANAGEMENT TECHNIQUES

A variety of techniques are available to conserve the diversity, and stability, of Oakland's plant and animal communities. The specific combination of techniques chosen will need to vary from place to place, since the different communities vary so much in their needs and in their sensitivity to urban conditions.

Controlling the location and nature of new development is one approach. For example, those portions of a large site which have the greatest ecological importance may be left intact. Buffer zones may be left around critical nesting or breeding areas, and access restricted if necessary. Even in the developed portions, grading or landscaping may be done sensitively so as to restore, and even add to, the diversity of habitats and vegetation. Individual plant species can be chosen so as to subsidize wildlife populations. For example, fuchsia is valuable to hummingbirds.

Although it may be impracticable for lawns, turf, and some specialized landscape effects, the use of native trees and shrubs is a good practice to follow where feasible. Native plants typically are more useful as food or shelter for wildlife, and cost less to maintain.

Some artificial controls on plants and animals are essential in an urban area, but these are often best applied with a light hand. Chemical pesticides and herbicides, in particular, need to be used carefully to avoid damage to desirable species. New "biological" insect controls are being developed which may, in the long run, prove

more efficient as well as less dangerous to other wildlife.

The City has been working with the East Bay Regional Park District, EBMUD, the University of California, and interested conservationists to develop a vegetative management strategy to reduce fire hazards in the hills. As part of this strategy a "fuel break" is approaching completion along or near Oakland's ridgetop city limits, to separate urbanized areas from the wild undeveloped land beyond. This is basically a 300-foot-wide clearing, but carefully designed and planted to minimize its artificial appearance. Other planned steps include breaking up the larger eucalyptus stands into smaller and more manageable units (with control of the ground fuel therein); the creation of fuel breaks around water tanks; clearing of brush, overhanging tree limbs, and debris around homes; and, in the long run, management of ground fuels throughout the hills. The strategy also calls for replanting with native materials which are resistant to fires, and for clearing, pruning, and other actions to maintain a separation or discontinuity of fuels.

POLICIES

The following policies are recommended:

1. *Efforts should be made to perpetuate the full range of plant types and plant communities, and therefore also wildlife variety, found in Oakland. (E)*
2. *Special attention should be given to the protection of rare and endangered species. (E)*
3. *Where new development occurs, examples of native vegetation should be retained and, where feasible, large sections should be left undisturbed for ecological, educational, and aesthetic benefit. Where appropriate, the development should incorporate a diversity of suitable new plant materials to provide food and shelter for wildlife. (M)*
4. *Marshes and tidal mudflats should be preserved to the fullest extent feasible to provide habitat for fish and wildlife. (E)*
5. *Locations for recreational fishing should be distributed among the various marine environments from shallow mudflats to areas where close-to-shore dredging or piers provide access to deep water. (E)*
6. *As much as feasible, wooded tracts of open land should be preserved, with only careful inroads for development allowed. (E)*
7. *The recovery of wooded areas stricken by disasters, such as killing frosts or fire should be assisted by tree planting or other appropriate management techniques, for ecological, fire-control, erosion-control, and aesthetic reasons. (M)*
8. *The City will develop programs to continue the reduction of fire hazards in the City's hill areas through vegetative management, incorporating considerations for the appearance of the hills as an integral part of these programs. (E)*
9. *The removal of large live trees, wherever they occur, should be avoided for desirable species of trees. (E)*
10. *Extensive tree planting programs should take place in most residential and commercial areas. (M)*
11. *Wildlife and natural vegetation should be protected from indiscriminate use of dangerous pesticides and herbicides, especially in areas where topography and wind can facilitate the spread of these substances and promote the accidental poisoning of plants and animals. (E)*
12. *Viewing and interpretive facilities should*

be provided where there are significant concentrations of wildlife. These should be carefully located and designed to avoid disrupting the wildlife and its habitat. (E)

13. *Wherever practicable, landscaping should include use of native plant species. (N)*

Air, Energy, and Solid Waste Resources

The diverse topics of air, energy, and solid waste may at first glance seem unrelated. In fact, they are closely interdependent. For example, most air pollution is caused by burning fuel to provide energy. The outlook for pollution control is closely tied to energy consumption trends and to the prospects for new energy sources. Finally, garbage and other solid wastes pose some pollution problems themselves as well as offering a new energy source.

For all three problem areas, many of the remedies will call for complex new technology. This in turn will require farsighted research and vigorous action at the national and state levels--though there are also things to be done in Oakland and the Bay Area.

AIR RESOURCES

Modern society has made heavy use of the atmosphere to dispose of gases, soot, and other air-borne wastes. Unfortunately, the "airsheds" over our cities have only a limited capacity to absorb these wastes without serious reductions in air quality. In the Bay Area Air Basin--despite marked, publicly-enforced improvements since 1955--State air quality standards are still exceeded on a significant number of days. Into this airshed in 1971, an annual average of 7,600 tons of pollutants per day were emitted.¹

Climatic and Topographic Factors

Nature removes or dilutes air pollutants largely by means of winds and vertical air currents. A critical factor is the "mixing depth": the height of the airspace available for dilution. Such mechanisms depend on climate and topography.

The Bay Area's climate is dominated by the ocean, which generally keeps the winters warmer and the summers cooler than they would otherwise be at this latitude. During much of the year there is a steady sea breeze. This makes the inner East Bay cities susceptible to pollutants from the industrial areas and freeways near the Bay shoreline.

Oakland is usually rather well ventilated, except when so-called temperature inversions occur. These are situations where a layer of relatively cool air near the ground is trapped beneath a layer of warmer air, so that the normal mixing depth is limited. The situation is aggravated by the Bay Area's confined, bowl-like topography. In the absence of wind the air may remain stratified for days on end. It is at such times (especially common on sunny fall days) that smog becomes most noticeable.

Air Pollutants and Their Effects

Air pollution is not one but many problems. Over a hundred pollutants have been identified, and these can have widely different effects on different people at different degrees of concentration. Pollutants are usually classified as particulate matter or gases. The former include what we call dust, smoke, and ash, (and they result from varied activities such as burning, chemical reactions, grading, and crushing). The latter include carbon monoxide, sulfur oxides, oxides of nitrogen, and hydrogen sulphide. So-called petrochemical smog results from a chemical reaction, in the air, between different compounds under the influence of sunlight.

¹ San Francisco Department of City Planning, Conservation: A Proposal for Citizen Review, March 1973, p. 38.

In general the amount of air pollution is directly related to urbanization. In the Bay Area the most important source consists of gasoline- or oil-burning motor vehicles, followed by stationary sources like factories and fuel-burning electric power plants. Auto exhaust is the biggest source of smog-triggering gases, and of lead particles. It is especially significant because it is emitted at ground level, and largely in populated areas. Industries are responsible for many pollutant gases, and most of the undesirable types of particulate matter. Thirteen Oakland industries, for example, appeared on a 1971 list of major polluters compiled by the Bay Area Air Pollution Control District.

Many of the effects of air pollution are well documented. Pollutants not only irritate the eyes but contribute to respiratory ailments, and they may have other serious effects on human health. In sufficient concentration they can damage or kill plants or animals. Some can damage or discolor materials such as rubber and paint. Smog, of course, affects aesthetic qualities by reducing visibility.

Pollution Control Techniques

Just as there are many types of pollutants and sources, there are many kinds of control techniques. These include such things as injecting more air during combustion, so gases will burn more completely; capturing the pollutant gas left after combustion; removing particulate matter by filtering, washing, or electrostatic treatment; building smaller cars and more efficient auto engines; and switching to lower-pollution energy sources such as low-sulfur gas. The use of such techniques, which may be costly, can be impelled by regulations like those of the Air Pollution Control District or other public agencies.

Air pollution can also be affected by local and, especially, regional decisions on transportation and land use. The overall circulation system can be planned to encourage use of mass transit--

and such inherently non-polluting travel modes as walking and bicycling--rather than automobiles. The type, location, and density of land uses can be planned to (1) minimize the aggregate mileage driven between homes, shops, and employment and (2) keep pollution generators like freeways and industries away from populated areas (and from locations where prevailing winds blow toward populated areas). Areas of open land can help to dissipate pollution, especially if they contain significant vegetation.

ENERGY RESOURCES

An adequate supply of energy--to power vehicles and industries, to heat and cool homes, to run appliances--is vital to our civilization. With increasing population and income, and increasing reliance on machines, energy use has grown rapidly in this century. This trend has led many to take abundance for granted -- until, that is, the energy crisis of 1973-74.

Actually, in a broad sense the world is not running out of energy resources. Our environment contains enough potential energy, in various forms, to meet all conceivable future needs. What are in increasingly short supply are the easily harnessed fossil fuels on which we have become dangerously dependent.

Existing Sources

By far the largest energy sources in the Bay Region today are petroleum and natural gas. Gasoline or fuel oil, refined from the petroleum of distant oil fields by various companies, is used in autos, planes, trucks, ships, and heavy machinery. Fuel oil is also used to heat some homes, and at certain times to generate electricity at power plants. Natural gas is brought in, largely from the nearby Rio Vista Gas Field, by the Pacific Gas and Electric Company. Great quantities are used for heating homes, offices, and industries. The P. G. and E. itself uses large amounts, as the main fuel for its power plants which generate most of the Bay Area's electricity.

The remaining electrical demand is met mostly by hydroelectric power which P. G. and E. imports from outside the Bay Area. Some electricity also comes from P. G. and E.'s geothermal power plant at the Geysers in Sonoma County and its atomic reactor at Eureka. Coal is little used in the Bay Area, except in some industrial processes.

Potential Sources

There are many potential energy sources, some of which could be exploited fairly easily while others pose difficult technical and economic questions.

Energy could be drawn from solid wastes, as discussed later. Use of coal could be stepped up, as the United States has large coal reserves, though there are some potential environmental problems. Some coal could be converted into natural gas by controlled burning. Oil might be extracted from the huge reserves of shale under the Rocky Mountains. More atomic fission power plants might be built--including the proposed "breeder reactor" type which would use uranium more efficiently--though these could involve questions about safety.

Fusion power would be preferable for the long run, if the technical obstacles can be overcome. Unlike fission which releases energy by splitting the atoms of rare elements like uranium, fusion would work by combining the atoms in isotopes of the abundant element hydrogen. Also, it would pose much less hazard to the environment than fission does. Other potential energy sources include solar power (devices like concave mirrors and solar cells could put sunlight to work directly or through conversion to electricity); the wind (modern windmills could generate electricity); the tides (reversible turbines could harness the power of the incoming and outgoing tides); the oceans (offshore stations might generate electricity from natural temperature differences between water

at various depths); and hydrogen (hydrogen, which has twice the fuel energy of gasoline, could be extracted from water by electrolysis).

Many of these potential sources would be both "clean" (nonpolluting) and virtually inexhaustible.

Energy Development and Conservation

In the coming decades the challenge will be to phase in desirable new energy sources, while making the most of existing ones. Many new sources must be explored, for some will likely prove disappointing. Ways to use existing sources better include improved drilling and refining techniques; energy-saving building design (including insulation to minimize fuel needs for heating and cooling); avoidance of over-illumination; more efficient lighting practices; development of smaller autos with more efficient engines; recovery of waste heat in industry; use of native vegetation in landscaping (this typically needs less water and maintenance); regulations (such as rationing, or the 55 mph speed limit) which reduce consumption; taxes and utility-rate structures which discourage waste; and campaigns to promote voluntary conservation. Public agencies can help such campaigns by setting a good example themselves. Furthermore, the circulation system and land use pattern can be planned to reduce energy consumption.

SOLID WASTE RESOURCES

The natural resources man uses largely end up as "solid waste": trash, rubbish, sludge, and garbage. In the past, solid waste has simply been dumped at a "sanitary landfill" site and covered with dirt to control odors and flies. However, there is so much solid waste that nearby land suitable for dumping is getting scarce. Also the viewpoint is growing that the solid waste from our cities is a major resource--which, wherever possible, should be exploited in preference to our untapped natural reserves.

Tin cans and other components can be salvaged.

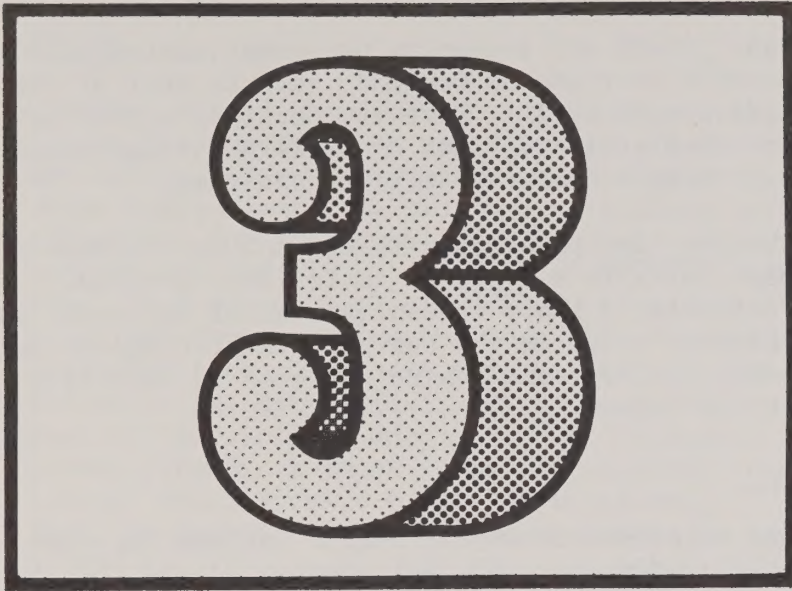
Compost can be used as a soil conditioner, and the sludge from sewage plants as fertilizer. Many forms of waste can provide energy, either directly through burning or after conversion into gas. Even the ashes left by burning can be used in things like paving materials.

The comprehensive solid waste management plan which Alameda County has prepared stresses the importance of waste recovery operations. This approach is also reflected in the master plan of the Oakland Scavenger Company, which provides waste collection service to the cities from Albany to Hayward. Beside proposing a new landfill site near the Altamont Hills, that plan calls for "resource recovery/transfer stations" in San Leandro and Hayward. Some resource recovery is already done by private groups like the Volunteers of America, and by privately operated recycling centers.

POLICIES

The following policies are recommended:

1. *The City strongly encourages federal, state, regional, and private efforts toward air pollution control, energy development and conservation, and recovery of solid waste resources. (N)*
2. *To relieve the almost total dependency on automotive transportation within urbanized areas of the region, the City actively encourages the development of a comprehensive and totally integrated system of mass transit as well as other alternatives. (E)*
3. *In deciding on major land use and circulation issues, the City will consider the possible effects on air quality and energy consumption. (N)*
4. *In its own operations and construction projects, the City will seek to avoid waste of energy resources. (N)*



Parks and Recreation

Oakland is widely known for its many fine parks and recreation programs. The surrounding Bay Region offers attractions which draw tourists from all over the world. Unfortunately, though, neither city nor regional efforts have been able to meet the rapidly growing demand for recreation. Oakland's park and recreation acreage is currently far below desirable standards. It is especially deficient in local public open space within the low- and moderate-income communities in the flatlands.

One response to this situation might involve all-out efforts to bring such acreage up to desirable levels. However, this would be very costly, especially in built-up areas where significant clearance of housing and other property would be required. The cost and disruption could seriously conflict with other City goals. A more balanced strategy, while still calling for some major acreage increases, would also emphasize other techniques such as making more intensive use of existing City sites and making nearby regional parks more accessible to Oaklanders.

Such a strategy is assumed in this Element's basic recreation goal:

To meet the recreation needs of all Oakland residents, as well as employees, shoppers, and visitors, through a balanced, diversified, and attractive system of parks, recreation centers, and other facilities and programs.

Although this Element emphasizes City actions, the above goal is not meant to apply only to the City government. There are also vital roles for the other suppliers of recreation programs and facilities. In addition to local and regional public agencies, these include the host of private organizations, developers, and commercial establishments which help to meet recreation needs.

The Parks and Recreation System

"Recreation" can be broadly defined as whatever people do when they are free to choose what to do--that is, in the leisure which they have aside from work, housekeeping, and other essential tasks. Recreation includes any activity a person chooses simply for the enjoyment or sense of achievement--the refreshment of body or mind--which it brings. It covers the wide and complex range of physical exercise, play, relaxation, hobbies, and mental and aesthetic stimulation. Playing basketball on a school yard, sitting on a park bench, or going on a nature hike are all recreation activities--and so are shooting pool or even watching television at home. It is often overlooked that a great deal of urban recreation goes on indoors.

Recreation is valuable in terms of physical and emotional health; educational benefits; social benefits (providing comradeship, or a wholesome outlet for energies which might otherwise be used destructively); and, simply, the pleasure it gives.

It is useful to think of urban recreation as a system made up of interacting parts. In this system a population--depending on its size and

socioeconomic make-up--demands varying amounts and types of recreation activities at varying locations. The other components are the different recreation facilities and programs which may be available, and which in turn may be provided on various kinds of sites. Feedback occurs within the system. For example, the kinds of activities which people demand are partly affected by the types of facilities which are already present in some amount and therefore familiar to them.

FACTORS AFFECTING RECREATION DEMAND

It is widely acknowledged that recreation demand is growing. For example, the State has forecast that by 1980 aggregate demand for outdoor recreation in California will be roughly twice what it was in 1960.¹ Population growth has been one cause of such increases, but its impact has been reinforced by some trends in the population's socioeconomic profile. Research by the United States Outdoor Recreation Resources Review Commission (ORRRC) and the California Department of Parks and Recreation indicates that certain factors such as income strongly influence the desired amounts, types, and location of recreational activities.

Total Population

Population has been growing rapidly at the regional scale: by 1974 over four and a half million people lived in the nine-county Bay Area. Oakland's population has stabilized and even decreased in recent years--going from 384,575 in 1950 to 367,548 in 1960 to 361,561 in 1970. In the future some signifi-

cant growth may accompany new construction in certain sections of Oakland, such as part of the undeveloped hills. However, declines may occur in other sections, such as semi-industrial areas with many old houses in poor condition.

The day-time population should not be overlooked, especially in a regional center like Oakland. Particularly heavy concentrations of employees and shoppers occur in the Central District and at some other centers, and can be expected to intensify in the future.

Age

One major socioeconomic factor influencing recreation demand is the age profile.

In Oakland the decade of 1960 to 1970 saw decreases in the number of persons under 15--a trend consistent with a decrease in the national birth rate. This loss was partly offset, however, by growth in the 15-44 age group, and by some increase in the 65-and-over group.

Because they have more free time and surplus energy, young people generally participate much more than adults do in outdoor recreation--at least in the more physically strenuous activities. Also, because of their relatively low mobility and income, children tend to be heavily dependent on publicly-provided recreation located in the neighborhoods and communities where they live. For such close-to-home situations, one could assume that, on the average, persons under 18 currently need something like three times as much public recreation as adults do.

Persons over 65 may not need more recreation space per capita, overall, than other adults. However, the elderly have their own distinctive recreation needs. Indoor activities are especially important, though outdoor interests should not be overlooked. While most older people do not engage in strenuous sports, they enjoy being "where the action is"--watching games, for example, or just sitting around in some active, interesting place.

¹California Department of Parks and Recreation, California Outdoor Recreation Resources Plan, January, 1972, page 25.

Income

National surveys have found that increases in income tend to increase participation in outdoor recreation. This is significant for Oakland, where median family income in real dollars (after adjustment for inflation) grew by 21.5 per cent between 1960 and 1970. In the latter year, however, 16.6 per cent of all Oakland's residents still had incomes below the Federally-defined "poverty" line, and these were heavily concentrated in the city's flatlands. Though the poor may participate much less than higher-income persons in those forms of recreation activity which require expensive equipment, fees, or travel, they are more dependent on public facilities and programs--and especially on those which are located in the immediate neighborhood or community. For the latter, it could be assumed that, on the average, persons below the poverty line need twice as much as higher-income persons.

Mobility

Another factor is mobility, which, as suggested above, is closely linked to age and income. Overall, mobility has been increasing significantly--that is, until the 1973-74 energy crisis. If fuel shortages or high gasoline prices continue, there may be a significant increase--or at least no decrease--in the relative demand for close-to-home recreation.

Leisure Time

One of the major factors affecting aggregate recreation demand is the amount of leisure time. At the national level the average standard work week for nonagricultural workers is growing increasingly shorter. By the year 2000, a work week in the neighborhood of 32 hours has been predicted. For many people, major recreation outings are no longer confined to vacations and holiday weekends: they are recreating more in the evenings or on regular weekends. Also, the average age of entry into the work force has been increasing, partly

because of a need for extended academic training. Especially in Oakland, many young people have had difficulty finding employment. As a result many teenagers and young adults have a lot of spare time on their hands.

Housing Type

The type of housing people live in can also affect recreation demand. In Oakland the percentage of two-or-more-family units has been increasing, going from 43.5 per cent in 1960 to 50.8 per cent in 1970. Multi-family dwellings usually provide less on-premises recreation space than single-family houses, and their residents are thus more dependent on nearby public parks and recreation areas for their day-to-day recreation activities. For such nearby public recreation, one could reasonably assume that the average resident of a multi-family dwelling needs 25 per cent more than the average occupant of a single-family house.

Cultural Changes

Finally, cultural changes have been affecting recreation demand, both nationally and locally. These include higher educational attainment; wider acquisition of recreational skills; new recreation technology (ten-speed bikes and off-the-road motor vehicles, for example); increasing concern over physical fitness; and the desire to develop major interests outside of work.

RECREATION ACTIVITIES DEMANDED

The most thorough study ever made of the amount and types of outdoor recreational participation in America was the 1960-61 National Recreation Survey sponsored by ORRRC. This was partially updated by a similar survey taken by the United States Bureau of Outdoor Recreation in 1965. These studies generally found that the simpler activities--those requiring less expense and skill--are the ones that most Americans engage in. These included such things as walking or driving for pleasure, swimming, bicycling, and playing softball or other common outdoor games. Activities, such as skiing or boating, which require either special skills or

costly equipment were engaged in by far fewer people. However, such activities tend to involve a sense of personal involvement and fraternity which is not always found in the more common forms of recreation.

The California Department of Parks and Recreation has used the 1960-61 findings along with more recent demographic data to estimate the current demand, by residents and visitors, for outdoor recreation activities within the Bay Area. The results appear in Figure 4.

As its title indicates, this chart does not include indoor recreation activities. Also, the pattern it shows is a regional one which should not be imputed directly to Oakland. No comprehensive survey has been made of recreation participation within the city limits. However, Figure 4 does emphasize the great diversity of outdoor recreation interests, from so-called "passive" ones like picnicking to "active" ones like swimming. This diversity is probably echoed in Oakland. General experience, and citizen requests, confirm the local popularity of such pastimes as walking for pleasure, playing outdoor games and sports, swimming, and bicycling. Less common activities such as nature walks also have their local aficionados. There is significant demand for boating and fishing and because of Oakland's strategic shoreline location within the region these may be much more important in Oakland than in the region as a whole.

One reason why it is risky to apply the regional activity profile to Oakland is that recreation in Oakland is far from being a closed system. A great many Oaklanders go outside the city, and even outside the Bay Region, for much of their recreation--skiing in the Sierras, for example. It is true that many visitors come into Oakland for recreation, but the activities they seek may be different from those of the Oaklanders who go outside. In this connection, there is great variation in the distances people will travel to engage

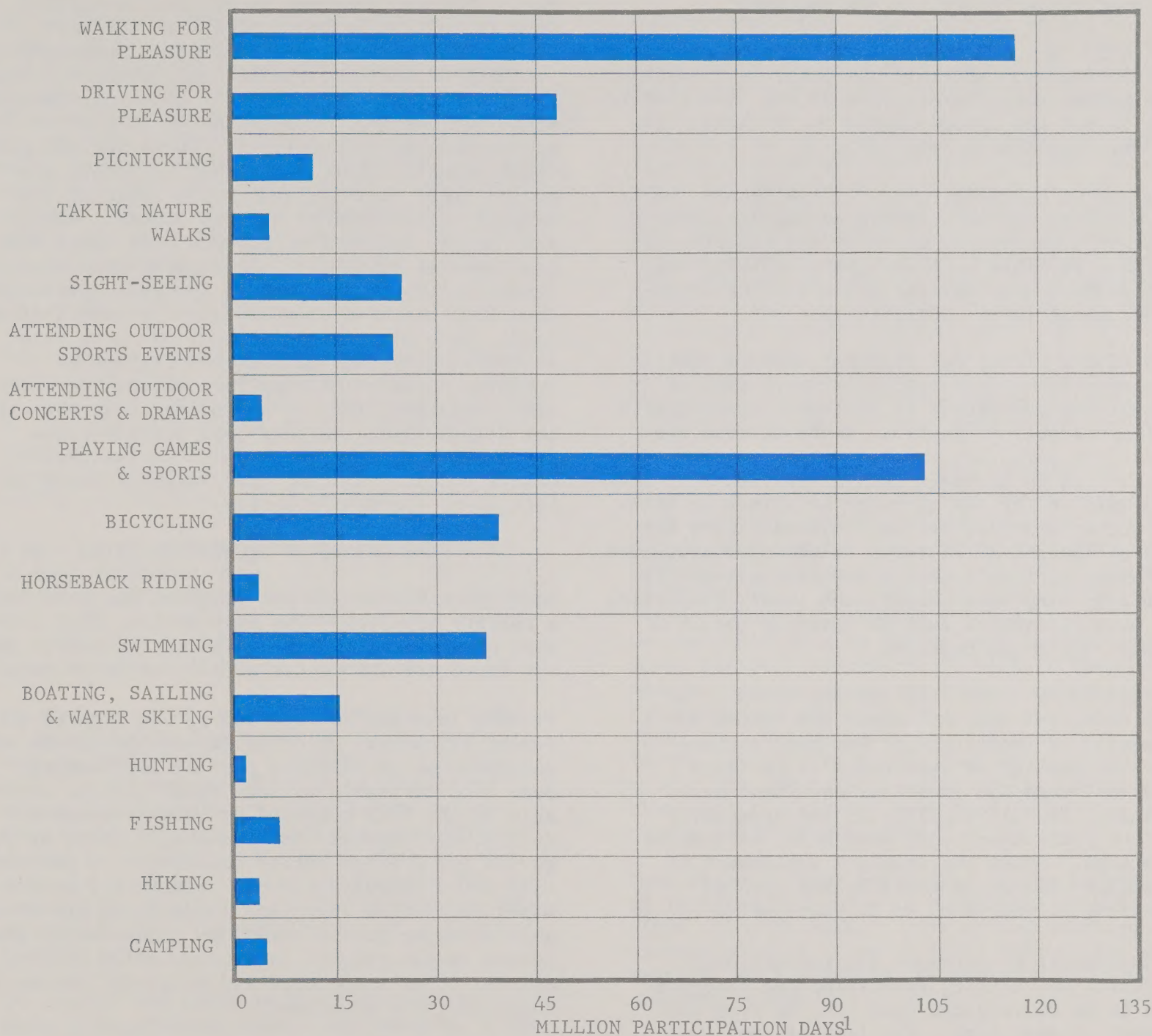
in different activities. For the most frequent pastimes, and especially for children's activities, demand is usually concentrated in the immediate neighborhood or community. For the less common or more specialized activities, however, people are willing to go much farther.

Furthermore, using average statistics for any large area conceals major variations between different kinds of people. A great city accommodates a great diversity of people, and they all need some forms of recreation. Though the recreational needs of young children are widely recognized, the special requirements of teenagers, senior citizens, and adults of working age also need to be considered. So do the needs of the handicapped. Furthermore, recreational patterns may vary significantly among neighborhoods and ethnic or social groups. In 1970, about half of all Oaklanders belonged to minority ethnic groups (either nonwhite or Spanish surname). The profile of recreation interests in a minority or low-income neighborhood may be quite different from that in an "average" area.

Looking to the future, the California Department of Parks and Recreation has forecast that, statewide, big increases in demand will occur across the full gamut of outdoor activities. However, such projections are difficult to make--especially for a city like Oakland which has been undergoing significant changes in population make-up. There is no way to guarantee that today's favorite activities will be equally popular in the future. The 1960-61 ORRRC survey showed that many people did not necessarily want more of what they were currently doing but had aspirations for activities which were then just beyond their reach (in terms of such factors as cost or time). It appears that more and more people have been using their leisure time to learn new and more sophisticated recreation skills. This is reflected in increased demand for specialized instruction, and increased equipment sales for activities like backpacking, golfing, and scuba diving.

ESTIMATED DEMAND FOR OUTDOOR RECREATION BY TYPE OF ACTIVITY

SAN FRANCISCO BAY REGION, 1974



¹Includes demand for outdoor recreation activities in Bay Region by all Californians: both Bay Region residents and visitors.

Source: California Department of Parks and Recreation, California Outdoor Recreation Resources Plan, 1974, p. 128.

RECREATION FACILITIES AND PROGRAMS

Facilities are the physical elements of the recreation system: softball diamonds, park benches, bike paths, nature areas, and so on. Their desirable layout and design depend on the activities they are meant to accommodate.

Some may be single-purpose, like a tennis court, while others are not limited to any specific activity. An expanse of turf, for example, is a highly flexible multi-purpose facility--one that seems highly desirable in light of uncertainty about future activity patterns.

Even with a highly mobile population, a facility's relative accessibility is still crucial in determining how useful it will be. Accessibility depends largely on physical distance from the facility's potential users. However, it may also be affected by barriers such as railroads or busy arterials--or by the adequacy of street or bike-way access and bus service. Accessibility may also be thought of in terms of hours of operation. For example, nightlighting may make a facility usable by many more people, and indoor facilities can make activities such as swimming possible at more times and seasons.

Facilities by themselves are not enough. In many cases recreation leaders are needed to supervise or teach skills. For many activities the quality of leadership is far more important than the amount of equipment or acreage. For all facilities, and especially for the most intensively used ones, maintenance is needed. Often the original investment in a facility may be exceeded by the cost of operating it over a 10 or 15 year period.

Since population patterns and recreational interests can change, facilities and programs need to be reevaluated from time to time and adapted as necessary. The lack of continual reevaluation can be a major cause of failure to meet recreation needs.

Facilities and programs in Oakland (described more fully in a later section) are largely provided by several public agencies including the City of Oakland, the Oakland Public Schools, and the East Bay Regional Park District. However, organizations and firms in the private sector have always been major suppliers. These include parochial schools, churches, clubs, and other non-profit organizations, and a wide range of commercial establishments such as cinemas, bars, pool halls, and bowling alleys. All these non-governmental suppliers help to meet recreation needs, but their very nature typically prevents them from reaching some important segments of demand. Many nonprofit organizations have rules restricting the use of their facilities to members. Commercial suppliers charge fees for their services, thereby excluding those who cannot afford them, and they only provide those forms of recreation on which it is possible to make a profit. Meeting the remaining needs is left up to the public sector.

CATEGORIES OF RECREATION SITES

Recreation facilities and programs are provided on a variety of sites. The most obvious kinds are what people usually call parks or recreation areas, but there are others (as already noted on page 7).

Private lots can be regarded as one type of site. Yards, balconies, or other recreation spaces are desirable as an integral part of all housing. Some kind of usable outdoor space is also desirable on the lots occupied by intensive nonresidential development--for example, a plaza or roof garden for a large office building or a pedestrian mall for a shopping center. Similarly, on-premises recreation space and landscaping are desirable at major public buildings. (Recreation also occurs on the private lots occupied by bowling alleys, other commercial and nonprofit recreation suppliers, and churches.)

Streets are the setting for many popular recreation activities. Depending on local conditions, these may include strolling, bicycling, driving

for pleasure, informal street play, window shopping, and people-watching. To the extent permitted by circulation needs and safety criteria, streets and highways can be designed or redesigned to enhance their recreational functions. This may involve such actions as tree planting or other beautification; designation of bike lanes along selected streets; imposition of special controls on roadside development along scenic routes (so that the route becomes a "parkway"); sidewalk widening to provide small sitting or recreation spaces; or even partial closure to allow safer street play.

Some facilities and programs are not tied to particular sites. Mobile units such as vans or portable play equipment can bring recreation to any available street corner or vacant lot. (Portable play equipment can also be used to create temporary recreation sites--on temporarily vacant land, for example.)

A park or recreation area can be classified in many different ways. It may be for either active or passive recreation or both. It may be linear (a trailway) or nonlinear. It may be specialized (a golf course) or it may contain several kinds of facilities.

One common classification scheme is in terms of an ascending hierarchy of service areas, such as "neighborhood," "community," "city-wide," and "regional." On an analogy with retail location theory, this scheme assumes that those facilities which are used oftenest should be closest to the user--that is, should have the smallest service area--while the more specialized facilities which the average person visits less frequently require a larger service area.

(A site at one level in the hierarchy may also serve a lower-level area. For example, a community recreation area may also function as a neighborhood recreation area for the immediate neighborhood, or a park which serves the whole city may also serve the recreation needs of

nearby communities. Or, rather, it can do so if (1) it is reasonably accessible to the lower-level service area and (2) it has the kinds of facilities and programs appropriate there.)

A related concept calls for grouping the facilities in each neighborhood or community--or at least the more intensively used ones--into a center. Oakland has long had such a policy. As long as the activities involved are compatible with each other, there are strong advantages to this concept. Clustering can provide very significant cost savings because it allows shared use of some spaces and reduces travel time for maintenance crews. A single large site may have stronger "identity" and therefore be used more intensively. The user will benefit because many kinds of recreation opportunities will be available to him on one trip.

However, in some cases it may be necessary, even desirable, to provide the facilities within an area on a disaggregated basis instead. A combined school-park complex can involve conflicts between activities and age groups, at least if the acreage is inadequate. In a built-up area, it may be impracticable to assemble a large site. Or it may be desirable to have two or more smaller recreation areas within a neighborhood which is chopped up by busy streets or other barriers--or where there is available and suitable land in two or more places. Then, too, the ultimate users should have a voice in the matter; the people in a neighborhood may prefer the convenience which smaller sites give them over the greater amount of facilities a single center might allow.

Even where a large recreation center is provided, it is often desirable to supplement it with other sites. For example, a park or trailway may be created along a creek or other interesting natural feature, or a plaza may be provided on a local shopping street.

Hierarchies of service areas and centers are, indeed, useful concepts but they should not be applied rigidly. Exceptions will often be called for. The idea is to have in each area a pattern

of sites which is both reasonably economical to develop and maintain, and as effective as possible in serving the particular local needs.

Neighborhood Sites

Some sites primarily serve people in the surrounding "neighborhood," which can be roughly defined as the service area of a public elementary school. This will vary considerably in total population, but will probably average from 5,000 to 6,000 residents. (Plazas or similar sites in a small-sized shopping area may also fall under this category, since the people coming there may be largely from the local neighborhood.)

A neighborhood recreation center seeks to meet the day-to-day recreation needs of all age groups in the area, although it specially emphasizes the needs of children. Ideally, it includes a paved area for court games; play apparatus; turf area for softball or other sports or free play; a tot lot (sandbox, swings, play sculpture, etc.); a small park area for picnicking, senior citizens activities, etc.; parking where necessary; and a building for indoor activities, instruction, or meetings.

Elementary schools typically provide multi-purpose paved yards, with some play apparatus--and ideally have more, such as turf and landscaping.

Where the neighborhood recreation center can be located next to a school, as a combined neighborhood center, the school structure can serve as the neighborhood recreation building and many of the outdoor areas can be shared--used by students during certain hours and by the general public at others. (Where the locational pattern so indicates, a neighborhood recreation center may be combined not with an elementary school but with a junior or senior high school, even though the latter has a wider service area than the immediate neighborhood.)

Other neighborhood sites may include separate parks or plazas, short trails which are mainly of local significance, and (in the sense discussed earlier) local streets.

The term "mini-park," which is often applied to small sites, can mean different things. A mini-park may be designed to serve small children, senior citizens, or any age group depending on the circumstances. It may include children's play areas, multi-purpose paved courts, or simply landscaped sitting areas. It is often intended to meet a pressing need for recreation space in an area where a large site cannot be assembled, and it may be designed to fit onto an available small vacant parcel. It may be intended mainly to serve only part of a neighborhood: the houses within a two-block radius, for example. It may function as a sort of back-yard substitute for children living in adjacent public housing or apartment developments which do not have their own adequate on-site recreation space.

Mini-parks tend to have significantly higher per-acre development and maintenance costs than larger sites.

Community Sites

Other sites primarily serve people in a cluster of several adjacent neighborhoods--a community which may average something like 20,000 to 25,000 residents. (Plazas in a community-level shopping district could also be placed in this category.)

A community recreation center provides more varied and specialized facilities and programs than a neighborhood recreation center (although it also provides basic recreation service to the immediate neighborhood in which it is located). It gives relatively more attention to the needs of teenagers and adults, many of whom may drive to the site. Ideally, it includes a large playfield, tennis courts, a large park area, and a community recreation building, in addition to the outdoor facilities found in neighborhood centers. In some cases it may have a swimming pool.

Junior and senior high schools also have service areas which cover several neighborhoods. They typically have multi-purpose paved yards and indoor gyms, while additional facilities like

turfed areas or landscaping are desirable. (Some Oakland sites have turfed playfields or track.) Significant savings may be made, again, where the community recreation center can be combined with a local school.

Other community sites may include separate parks or trailways.

Citywide and Regional Sites

Many parks and other recreation sites attract people from every part of the city, and even from elsewhere in the region and state.

Some of these are plazas in downtown or other special locations, while others are trails or wayside open spaces along scenic routes. However, many are quite large sites, the very size of which makes it possible for them to offer facilities, such as lakes for boating, which take up too much space to duplicate on many sites. Some of these are urban parks with an attractive landscaped character, but designed to provide a wide range of both active and passive recreational activities to large numbers of people. Others, less intensively developed, emphasize the preservation and enjoyment of the natural environment. These emphasize wilderness-oriented activities such as hiking, picnicking, nature study, and horseback riding. Still other sites are single-purpose, such as golf courses or stadiums. Finally, the playfields and other outdoor facilities at colleges and certain specialized schools also, in a sense, have a citywide or regional service area.

EXISTING PATTERN IN OAKLAND

The concepts above are illustrated by Map 5, which shows the existing parks and other significant outdoor recreation sites in Oakland (other than street and highway rights-of-way and certain vacant or civic sites incidentally used for recreation). The map also depicts the regional parks which extend along or across Oakland's city limits, such as Redwood and Anthony Chabot

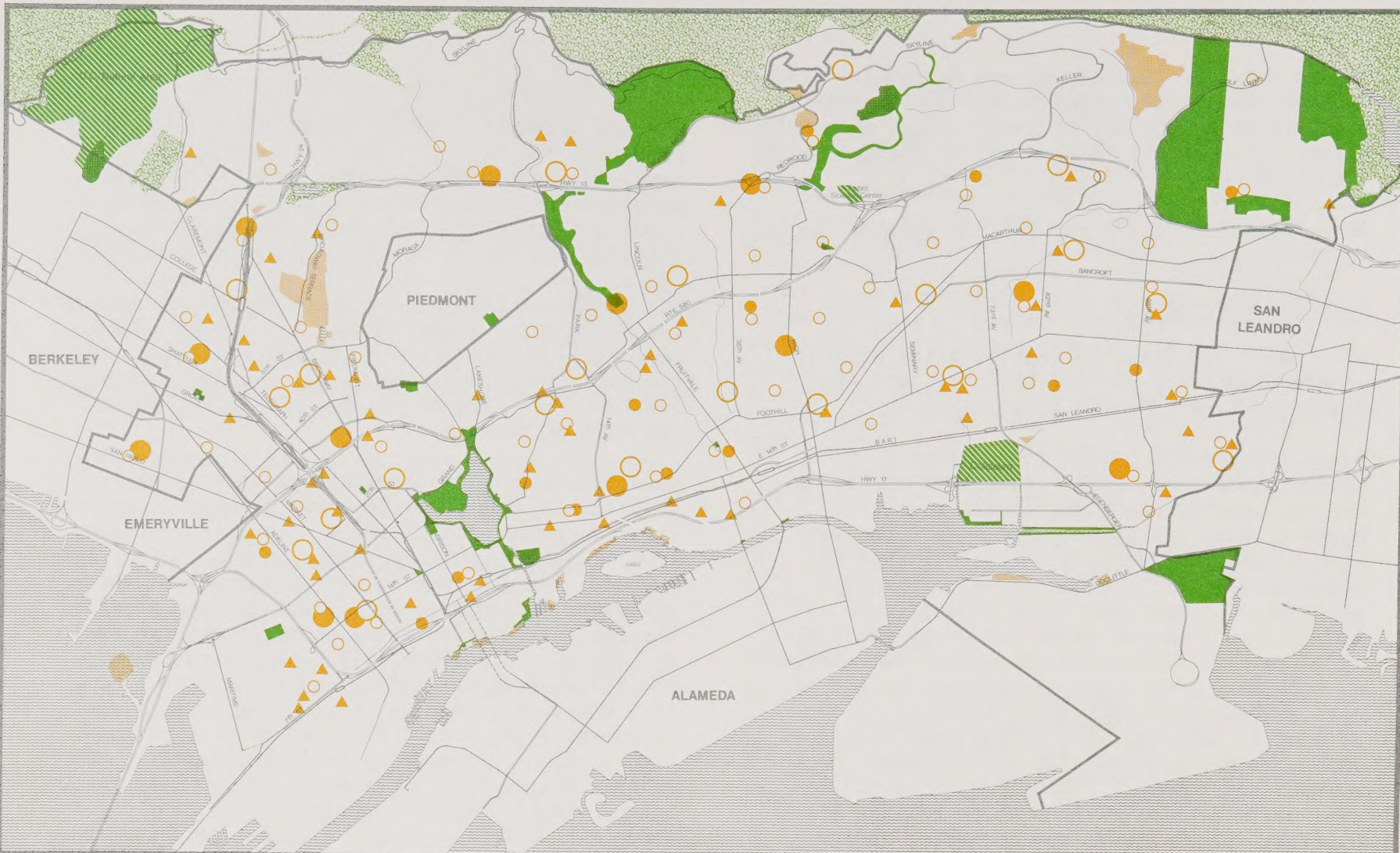
Regional Parks.

The map attempts to distinguish those sites which presently function at a citywide or regional level from those which primarily serve a local neighborhood or community. However, the distinctions between these categories are often very blurred, and some sites function at several levels.

The public sites of citywide or regional importance are often quite large, though some sites like City Hall Plaza are small. The several locations along the waterfront should be noted, including attractive Port View Park at the end of 7th Street (off the edge of the map).

Lakeside Park is an excellent example of an intensively used but attractive urban park, offering such varied facilities as boating, a natural science center, putting greens, play areas, picnic grounds, and a garden center. (Because of this diversity, Lakeside does a great deal to meet the local recreation needs of the neighborhoods and communities around it.) The big parks in the hills--both the City's and the Regional Park District's--are largely of the natural environment type, except for such heavily patronized sections as Woodminster Amphitheater in Joaquin Miller Park and the Zoo in Knowland Park. Other sites are highly specialized. These include the Galbraith and Lake Chabot golf courses, the Municipal Rose Garden, Davie Tennis Stadium, and the Oakland-Alameda County Coliseum.

The three campuses in Oakland which the Peralta Community College District now operates all provide some recreational facilities, although those at Grove Street campus are very limited and some of those at Merritt College are not presently open to the general public. Nor are the playgrounds at Grant Continuation High School and the other specialized sites operated by Oakland Public Schools--or the Strawberry Creek recreation area at the University of California. However, the ecological study area and adjacent portions of the University of California are accessible and therefore serve to some degree as a public recreation area.



PUBLIC SITES WITH CITY WIDE OR REGIONAL SERVICE AREA

- City Park or Recreation Area
- Regional Park District Site
- College or Special-School Recreation Area
- Other Site

PUBLIC SITES WITH NEIGHBORHOOD OR COMMUNITY SERVICE AREA

- Community Recreation Center
- Neighborhood Recreation Center
- Other City Site
- Secondary School Playground
- Primary School Playground

PRIVATE NONPROFIT OR COMMERCIAL SITES



Map 5
Parks and Recreation
Areas, 1975



Base Map: © MCMLXXXI by North American Maps, San Francisco, Ca. For use by City of Oakland only. Reproduction of map or portions thereof without the written permission of North American Maps is prohibited.

Facilities incidental to day care centers, private schools and colleges, and nonrecreational civic organizations are not depicted.

The neighborhood and community sites are typically much smaller than the citywide or regional ones, and distributed much more evenly across the city. Only a few of them are oriented to creeks or other natural features.

A great variety of facilities and programs are provided at the City-operated sites. Examples include simple games and story telling for pre-school children; games, dramatics, carnivals, and nature crafts for older children; sports, dances, special interest groups, and "work-recreation" projects for teenagers; and arts and crafts, picnics, team sports, and social and community group meetings for adults. (On the other hand, a few sites--notably Garber Park on Claremont Avenue and Shepherd Canyon Park on Park Boulevard--have little or no improvements and are scarcely used at all.) The map indicates those sites which presently function to some degree as neighborhood or community recreation centers. However, most of these have much less acreage, and fewer facilities, than is desirable.

The City is currently operating several mobile recreation units, offering activities such as arts and crafts or puppet shows.

The map shows how the City's neighborhood and community sites are often located next to schools. There are various ownership and leasing arrangements between the City and the School District. In some cases the City's recreation area is on property leased from the District, while in others the District leases City-owned land for school playground use. The City's involvement with schools goes beyond the recreation areas which it formally owns or leases. City recreation leaders conduct after-school, Saturday, and summer-vacation activities at most of Oakland's public schools. These include children's programs on elementary school playgrounds, sports activities on junior and senior high school playgrounds, and evening programs for youth and adults in

most junior high school gyms and all senior high school ones.

At its sites, the Oakland Public Schools provides for physical education, play, and various indoor recreation activities during school hours, and some after hours.

As for streets and public buildings, some are landscaped but in general they are not particularly adapted to serve recreation functions. The MacArthur Freeway, Skyline Boulevard/Grizzly Peak Boulevard/Tunnel Road, and Shepherd Canyon Road have been designated as scenic routes.

Some of the finest recreation facilities in Oakland belong to private nonprofit organizations. Those shown on Map 5 are the large Claremont and Sequoyah Country Clubs; the Highlands, a smaller tennis, swimming, and golf club serving the Hiller Highlands residential development; the Piedmont Racquet Club; the Berkeley Tennis Club; the Oakland Hills Tennis Club; a rod and gun club near the Bay Bridge toll plaza; and yacht or boating clubs at Jack London Square, Brooklyn Basin, and San Leandro Bay. Others include the YMCA and YWCA and the Jewish Community Center. Many churches sponsor indoor recreational activities, especially for senior citizens, and some have small outdoor play areas for children. Private schools and colleges such as Mills and Holy Names provide facilities for their students which are sometimes partly available to outsiders. The Roman Catholic Diocese of Oakland runs a system of 20 elementary schools and three high schools. All of these have playgrounds, and the high schools have gyms. In general, however, these facilities are not open much beyond school hours.

At least some commercial recreation facilities such as theaters, bars, or bowling alleys can be found on most of Oakland's major commercial streets. The area around Jack London Square is a center for dining and entertainment. The downtown shopping area provides recreation in the form of window shopping. Though most commercial recreation occurs indoors, there are some signifi-

cant outdoor facilities. Those shown on Map 5 are marinas or related facilities at Jack London Square, Portobello, Clinton Basin, Brooklyn Basin, and San Leandro Bay; some equestrian stables near Skyline Boulevard; a motorized-cart track near Hegenberger Road; and a nine-hole golf course on Doolittle Drive.

STANDARDS

It has been traditional to use numerical standards in planning for recreation. Such standards may be of many types.

One kind has to do with the number of facilities in relation to the population they serve. For example, Dade County, Florida calls for one basketball court for each 500 persons in the predominant age group using the facility; one shuffleboard court per 1,000; one tennis court per 4,000; and one baseball diamond per 6,000 in its recreation plan.

Another kind of standard prescribes the size of each individual facility or site. For facilities such as a football field this is determined by the rules of the game, but for things like a picnic area the size is a matter of judgment. For a site containing several kinds of facilities, the standard may be determined partly by adding up the needs of each facility, making allowance for savings due to sharing of some spaces. This approach was used in Oakland in 1959 when it drew up the following standards for the total acreage of a combined school and recreation center (including the school building site):

Total Acres If Combined With:			
Type	Elementary School	Jr. High School	Sr. High School
Neighborhood Center	9	14	24
Community Center	19	22	32

However, it was felt at the time that these sizes were minimal, representing compromises with existing conditions, and that in most cases additional land could be profitably used. Indeed, the 1974 California Outdoor Recreation Resources Plan (CORRP) indicates that such sites should be considerably bigger.

Standards can be prescribed for service radius, that is, the distance a user must travel to reach a park or recreation facility. For example, for community recreation centers some typical standards, used by other localities or by national authorities on recreation, range from half a mile to three miles. For neighborhood recreation centers, a quarter mile or a half mile is frequently used. Los Angeles calls a quarter mile a "desirable" distance for neighborhood sites and a half mile the "maximum" distance. For neighborhood playgrounds, the National Recreation Association has recommended a quarter mile in high-density areas and a half mile in low-density sections. For tot lots or mini-parks in certain situations, many advocate much shorter distances.

Still another type of standard considers the aggregate acreage of parks and recreation areas in relation to population. For example, some authorities have recommended that a city should provide a total of 10 acres for each 1,000 residents, while others propose 15 acres. The statewide 1974 CORRP recommends 10 acres (apparently not counting school playgrounds) for city facilities, and also cites standards of 10 per 1,000 for county or regional parks and 65 per 1,000 for state parks. It appears reasonable to adopt a standard of 10 acres per 1,000 for total non-school acreage within Oakland.

One can also say how much of a city's park and recreation acreage should be at the neighborhood and community levels. A Palo Alto plan, for example, prescribes 2 acres (including elementary school playgrounds) per 1,000 residents for neighborhood sites and 2 acres (including junior or senior high school playfields) per 1,000 for community sites. Although others have proposed higher or lower standards, it seems appropriate

to adopt these figures for Oakland.

Standards could also be prescribed for the amount of park and recreation staff, or the dollar investment in facilities, per capita. To date however, there has been little research on which to base such figures.

Any discussion of standards immediately raises some serious problems. To begin with, there are no universally accepted standards. Each city must make its own judgment after analyzing local conditions--and balancing potential recreation demand against available fiscal and land resources and competing public needs. Furthermore, standards must not be applied rigidly to people with very heterogeneous needs, nor to neighborhoods with widely varying conditions. Any acreage standard for neighborhood and community sites should be adjusted where there are significant local variations from the city-wide population characteristics. Finally, standards which are desirable in the abstract may be next to impossible to achieve in built-up areas like much of Oakland. For such situations, it is better to consider an acreage standard as one measure of the relative deficiency in different areas than as a target which must be achieved.

The approach in such built-up areas needs to be flexible. The question is really how to achieve the greatest improvement in recreational service (broadly defined) for the money spent. In some cases it may be appropriate and feasible--perhaps because of vacant lots or other special site opportunities--to achieve or approach a desirable standard of park and recreation acreage at reasonable cost within the foreseeable future. In other cases, an emphasis on alternatives other than local land acquisition may be more effective. These would include such things as making more intensive use of an area's existing parks and recreation areas; making recreational use of streets and other local open spaces; and providing facilities at nearby citywide or regional sites while improving the area's access to them.

It is, however, realistic to apply acreage standards literally to the development of large tracts of open land. State subdivision law authorizes cities and counties, under certain conditions, to require that subdividers dedicate free land, or pay in-lieu fees, to serve local recreation needs. In large subdivisions, school sites must also be offered to the school district where appropriate, but the subdivider does not have to provide these free. If one uses a total of four acres per 1,000 population (adjusted where necessary) for neighborhood and community recreation facilities, and assumes that school playgrounds will provide part of this, a figure of 2.5 acres per 1,000 population seems reasonable for other neighborhood and community public sites. All land which is contributed (or for which in-lieu fees are paid) would need to be conveniently located, and reasonably usable for the kinds of activities desirably found in neighborhood and community recreation centers. A developer should not get credit for donating an unusable hillside.

The local recreation space discussed above should not be confused with the additional open space which a developer may set aside as a condition for approval of a planned unit development or similar discretionary project. This may include extensive sections of steep hillside, woods, or other land which is left in a more or less natural condition.

POLICIES

The following policies are recommended:

1. *The City will protect and where appropriate expand its system of park and recreation areas and facilities, and will budget for enough staff to provide adequate recreation programs, hours of operation, and maintenance. (N)*
2. *The City urges the East Bay Regional Park District and other relevant public agencies and private organizations and firms to improve and expand the recreation facilities and programs appropriate to their respective*

roles, especially in ways which will help meet the needs of Oakland's deficient neighborhoods and communities. (N)

3. To the maximum extent feasible, all public schools and colleges should provide recreation opportunities to the general public. (N)
4. The appearance and recreational value of schools and other appropriate public buildings should be enhanced through landscaping and provision of usable outdoor spaces. (N)
5. All major new residential, and high-density nonresidential, developments should provide on-site usable open space for their occupants and, where appropriate, the general public. (N)
6. In the aggregate, the City and other public agencies should provide a sufficient quantity and diversity of park and recreation sites, facilities, and programs to effectively serve a clientele with widely varying characteristics, needs, and interests. (N)
7. The overall geographical pattern should be a balanced one providing park and recreation sites, facilities, and programs at the neighborhood, community, citywide, and regional levels. Each area of the city should be served as equitably as practicable. (N)
8. Within each area, the City will adapt the types and locational pattern of its park and recreation sites, facilities, and programs as closely as feasible to particular local needs and wishes. (N)
9. Where practicable and compatible with the particular neighborhood, the major City recreational facilities serving each neighborhood (area averaging 5,000 to 6,000 population) should be grouped into a neighborhood recreation center, preferably next to a local school as part of a combined center. The recreation center should provide facilities and programs to serve the day-to-day recreation needs of all age groups in the neighborhood, but with special emphasis on the needs of children. (M)
10. Where practicable and compatible with the particular area, the major recreational facilities serving each community (area averaging 20,000 to 25,000 population) should be grouped into a community recreation center, preferably next to a local school as part of a combined center. The recreation center should provide more varied and specialized programs, for a larger and more diversified clientele, than a neighborhood recreation center would. However, it should also provide for the day-to-day recreation needs of the immediate neighborhood in which it is located. (M)
11. The City will make continuing efforts to adapt its park and recreation facilities and programs to changing population patterns and changing recreational needs and interests. (N)
12. Comfortable seating should be provided, to accommodate the elderly, in interesting places such as busy pedestrian routes, playfields, commercial areas, or construction sites. (N)
13. A wide range of boating, fishing, and other public and commercial recreation uses should be provided along Oakland's waterfront. There should be provision for separated wildlife preserves as well as for intensively used recreational areas. (M)
14. A citywide system of pedestrianways and bicycle paths will be developed. (E)
15. All or portions of visually significant trafficways are eligible for future designation as scenic routes and for the protective restrictions that may be appropriate thereto. (E)
16. The City will make efforts where appropriate to increase the recreational value of street rights-of-way through such means as landscaping, sidewalk widening to create small

sitting or recreation spaces, or traffic controls to permit safer street play. (N)

17. Efforts should be made to increase the total acreage of public parks and recreation areas within the city limits, exclusive of facilities at schools, colleges, and universities, to at least 10 acres for each 1,000 of Oakland's population. (N)
18. Wherever practicable, there should be at least 2 acres of neighborhood public park and recreation sites (including school playgrounds), and 2 acres of community sites (including school playgrounds) for each 1,000 population. This population should be adjusted upward or downward in order to reflect local variations from the citywide proportions of persons under 18, persons below the poverty line, or two-or-more-unit dwellings. (N)
19. In built-up neighborhoods and communities, efforts to increase local recreation acreage should be kept in balance with other efforts which may in many cases be more efficient in increasing recreational service. These may include making more intensive use of existing sites, and making parks outside the area more useful and accessible to local residents. (N)
20. Where large-scale residential development occurs on previously open land, the developer should contribute at least 2.5 acres (or the equivalent cost thereof) for public park or recreational use for each 1,000 residents, as adjusted for expected population and housing characteristics. This should be in addition to any land which may be reserved for schools or which may be set aside primarily for scenic or conservation purposes. (N)
21. Where a developer contributes land (or the equivalent cost thereof) for public park or recreational use, each site intended

to meet the minimum standard of policy 20 should be at least two acres; should be conveniently located for potential users; and should be of such shape and physical nature that it will be reasonably usable for the kinds of activities desirably found at a neighborhood or community recreation center. The maximum slope should be 6 per cent for at least 55 per cent of such site, and 10 per cent for another 30 per cent of it. Only half credit should be given for any portion with a slope exceeding 10 per cent, and no portion steeper than 20 per cent should receive any credit. (N)

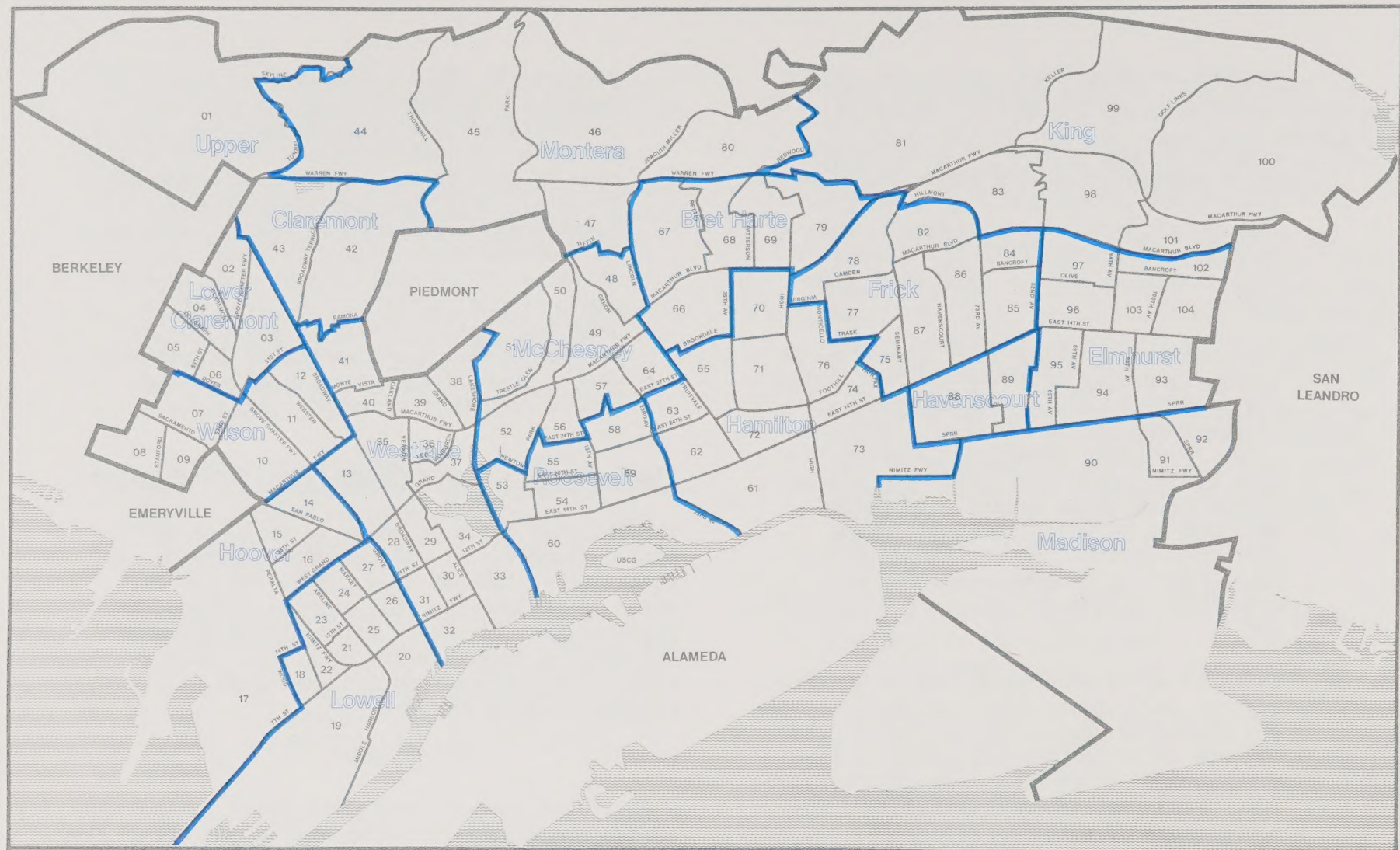
Deficiencies and Resource Allocation

It will cost a lot of money to maintain and expand Oakland's park and recreation system. Unfortunately, Oakland does not have a lot of money it can use for this purpose. Therefore, projects must be chosen carefully to maximize the benefit from each dollar spent. This in turn calls for systematic analysis of park and recreation deficiencies.

STUDY AREAS

Much of the analysis described below is in terms of the study areas shown on Map 6. To permit use of important Census data in analyzing recreation needs, these areas consist of groupings of whole census tracts. They have been drawn to approximate, as nearly as possible, the current boundaries of junior high school attendance areas. The study areas are named after the local junior high schools.¹ One attendance area, Claremont, was broken into two study areas because of the widely varying conditions within it.

¹ Hoover Junior High recently ceased operation, with much of its role to be taken over by Durant Middle School. To date, though, Durant's attendance boundaries have not been established.



Map 6

Recreation Study Areas



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Numbers 01-104 refer to 1970 census tract numbers 4001-4104.

These areas' large size and small number make them readily manageable for analytic and discussion purposes. They are also a good size for many aspects of citizen participation.

However, a major caveat is necessary here. Sometimes the deficiency figures for a large area may obscure important variations within it. Some sections may be substantially more--or less--deficient than the area as a whole. Such differences may be especially significant for neighborhood-level, as opposed to community, facilities. Where major variations exist a finer geographical breakdown, by individual census tracts or small groups of them, would be desirable.

(The same methodology used below can also be applied, as appropriate, to different systems of large study areas--for example, to Community Development (CD) Districts.)

The areas shown on the map vary widely in total population, as Table 2 reveals. They also differ in their age, income, and housing profiles. To take these factors into account, and thus gauge more sensitively the relative need and demand for close-to-home public recreation, an "effective population" was calculated for each area. (See Appendix 1 for methodology.) If an area has a higher percentage of persons under 18, persons below the poverty level, and/or units in multiple dwellings than Oakland as a whole does, its effective population is bigger than its actual population--and vice-versa.

The analysis below uses 1970 population figures since in most cases these are the latest available. The post-1970 population shifts have probably not been great enough to seriously alter the basic pattern of deficiencies.

PARK AND RECREATION DEFICIENCIES

There are many ways to measure park and recreation deficiencies. Any or several may be appropriate, depending on the situation.

TABLE 2

ACTUAL AND EFFECTIVE POPULATION
BY STUDY AREA: OAKLAND, 1970

<u>Study Area</u>	<u>Actual Population</u>	<u>Effective Population</u>
Bret Harte	21,034	17,509
Elmhurst	30,400	35,107
Frick	33,665	33,324
Hamilton	42,813	45,549
Havenscourt	8,705	12,744
Hoover	14,650	16,219
King	22,487	19,688
Lowell	14,978	20,186
Lower Claremont	17,612	14,080
Madison	10,097	12,363
McChesney	26,232	23,243
Montera	18,531	14,874
Roosevelt	26,840	29,726
Upper Claremont	8,393	6,710
Westlake	41,336	34,700
Wilson	23,788	25,539
<u>CITY TOTAL</u>	<u>361,561</u>	<u>361,561</u>

Source: 1970 U.S. Census of Population and Housing and analysis by Oakland City Planning Department.

As a further complication, the pattern of deficiencies varies by hour, day, and season. For example, school playgrounds are typically padlocked in the evenings and on weekends at those sites where the City has no after-hours recreation program. The lack of public open space in business centers becomes critical during the main working and shopping hours, and especially at lunch time. In the evenings, those communities without lighted recreation facilities become relatively more deficient.

Deficiencies also change over the years as facilities or programs are built or changed; as population patterns and characteristics are altered; and as the volume and types of recreational demand change.

Ideally there would be a comprehensive survey of what citizens feel is deficient. The complaints and requests people have made from time to time offer a partial substitute. Another indicator is the actual patronage of the various facilities and programs, though drawing conclusions from this can be risky. Some places are intensively used, and even congested at peak hours. Lakeside Park is the most prominent example, and one could infer from its heavy patronage a shortage of comparably attractive parks elsewhere. In contrast, certain other sites are strikingly underused. At some, this may be because the programs or facilities are inadequate, in poor condition, or physically uninviting. At other sites, underuse may be due instead to fear of crime; to inaccessibility; or, simply, to lack of knowledge and publicity about what the site has to offer.

Specific Facility Deficiencies

One approach to deficiency is to see what specific types of facilities are missing or scarce, either in Oakland generally or in each area.

Looking first at public facilities in Oakland as a whole, a partial and tentative deficiency list includes the following:

1. The lack of any indoor public swimming pool.
2. A shortage of beaches for swimming or sunbathing (the Regional Park District's beaches at Lake Temescal, Lake Anza, and in Alameda serve much of the demand, but are often very crowded).
3. The need for more fishing facilities along the shoreline.
4. An almost total lack of special bikeways or (except within some specific parks) pedestrian trails.
5. Inadequate provisions for the outdoor recreational needs of the handicapped (such as designing trails so that people in wheelchairs can use them).
6. A shortage of close-to-home outdoor areas in some areas having many elderly residents.
7. A shortage of comfortable seating in many parks and recreation areas.
8. Various deficiencies in outdoor sports facilities.
9. A need for more nightlighted facilities in many areas.
10. Some shortages of available athletic facilities for non-students during school hours.
11. The lack of any place where a dog can legally be exercised in a park without a leash (San Francisco, by comparison, has designated three such "dog runs").

12. A shortage of areas suitable for nature study within the more densely populated sections of Oakland.
13. An all-too-typical shortage of trees and other amenities within street rights-of-way.
14. An almost total lack of any recreation facilities in most commercial and industrial areas.
15. An inadequate range of facilities within many residential areas, especially in the clustered form of neighborhood recreation centers.

There are also some serious deficiencies in private recreation facilities. Most notably, many thousands of apartment buildings are poorly landscaped, if at all, and have little or no outdoor (or indoor) recreation space.

Looking now at individual study areas, Table 3 shows the quantity of some basic public facilities. For comparison, the table also repeats each area's effective population. The degrees of deficiency implied by the table are best regarded as apparent ones, since activity preferences can vary significantly. (However, apparent lack of interest may be due to lack of facilities. For example, how can one play tennis if there are no tennis courts?)

Although every study area has at least one turf-ed softball diamond, some areas--such as Frick--have very few per capita of effective population. It should be noted that most areas also have at least one baseball diamond, and softball can be played on a baseball field. The reverse is not true, however, and there are no turf-ed baseball diamonds at all in Upper Claremont and Westlake. Of those study areas which do have one or more baseball fields, Hamilton has the fewest per capita.

The Frick study area has the fewest tot lots in relation to effective population, while Elmhurst is in the second worst position.

The Elmhurst, Bret Harte, and Madison study areas have no tennis courts, while Hamilton and Havenscourt have very few in relation to population. By contrast the situation in Upper Claremont and Montera may be better than the table suggests, since these areas also have courts at private recreation centers.

Many study areas do not have a public swimming pool, although this fact by itself does not establish a serious deficiency. The City has followed the general practice of building pools next to senior high schools, which occur only in some areas. However, it is significant that there is no pool anywhere in the Madison, Havenscourt, and Frick areas and that the pool in Elmhurst (next to Castlemont High School) is near its upper border. This means that a large section of southeast Oakland is not conveniently served: a deficiency which residents have pointed out. There are also no public pools in the King and Montera study areas, which cover most of the hills--although the deficiency here is eased by the existence of pools at certain private recreation areas.

The term "recreation center building" is used to mean a distinct place suitable for a wide range of indoor activities such as arts and crafts or social gatherings. However, these functions can often be served, instead, by multi-purpose rooms, classrooms, or gyms at schools. Therefore, the lack of a separate recreation center building in each neighborhood is not necessarily a deficiency. However, it is usually desirable to have at least one such non-school building within each community. Interestingly, there is none in the contiguous Elmhurst and King study areas.

TABLE 3

NUMBER OF SELECTED PUBLIC RECREATION FACILITIES
BY STUDY AREA: OAKLAND, 1975

Study Area	Effective Population	Number of Facilities						
		Softball ¹ Diamonds (Turfed)	Baseball ¹ Diamonds (Turfed)	Tot Lots ²	Tennis Courts	Outdoor Swimming Pools ³	Recreation Center Buildings ⁴	Gyms ⁵
Bret Harte	17,509	2	1	2	0	0	1	1
Elmhurst	35,107	3	1	2	0	1	0	3
Frick	33,324	1	2	1	4	0	1	1
Hamilton	45,549	2	1	5	2	1	3	2
Havenscourt	12,744	3	2	2	1	0	1	1
Hoover	16,219	1	2	6	4	0	1	2
King	19,688	6	1	6	11	0	0	2
Lowell	20,186	3	1	7	3	1	2	1
Lower Claremont	14,080	1	2	3	3	0	1	2
Madison	12,363	3	1	3	0	0	1	1
McChesney	23,243	1	1	4	9	2	2	2
Montera	14,874	2	1	2	4	0	2	1
Roosevelt	29,726	3	1	5	4	0	2	1
Upper Claremont	6,710	1	0	2	2	1	1	0
Westlake	34,700	2	0	8	6	1	4	2
Wilson	25,539	3	2	3	10	1	3	2
TOTAL	361,561	37	19	61	63	8	25	24

1. Excludes areas used for softball and baseball at paved, multi-purpose school playgrounds.

2. Excludes facilities for small children at Oakland Public Schools playgrounds and "children's centers."

3. Includes Lake Temescal (in Upper Claremont), but not the day-camp-only pool at Joaquin Miller Park (in Montera).

4. Excludes school buildings which may be used at some hours for recreation by the general public.

5. Most of these gyms are at junior or senior high schools.

Source: Inventories by Oakland City Planning Department and Office of Parks and Recreation.

Program and Staffing Deficiencies

This study did not analyze program and staffing deficiencies in detail. One thing that makes analysis difficult is that staff distribution fluctuates from time to time. Nonetheless, some broad observations can be made.

The City's playground directors and recreation leaders tend to be assigned where the more intensively used sites are, such as playgrounds and recreation centers. An effort is made to keep assignments "fluid," permitting quick response to changes in the types and locations of activities demanded.

In general, there seem to be more deficiencies in the City's cultural and indoor programs than in athletics. The Office of Parks and Recreation would especially like to do more in dramatics, dance, and music.

The City has for years been facing a serious and growing shortage of maintenance staff. Rising labor costs and the intensified use of many sites have contributed to this. So has the fact that the total acreage to maintain has substantially increased without a proportional increase in maintenance personnel.

Maintenance, Design, and Safety Deficiencies

One result of the staff shortage is that some of Oakland's recreation facilities seriously need repair or better upkeep. Then, too, some facilities need modernization or redesign to make them more usable and attractive to more people. The aesthetic quality of some sites leaves much to be desired--especially the typical barren, treeless school playgrounds.

Vandalism is a serious problem that decreases the usefulness of facilities. Besides, fear of crime in general probably deters many people from visiting certain sites.

Access Deficiencies

In discussing access deficiencies, one must distinguish between sites with different service areas. Most of the sites intended to serve the whole city or region are--despite some parking problems, as at Lakeside--reasonably accessible to people who can drive to them. For those who cannot, however, access to many sites is difficult. Although there are bus routes going to, or near, most of the big parks in the hills, many of these have infrequent schedules or do not run at all on evenings and weekends.

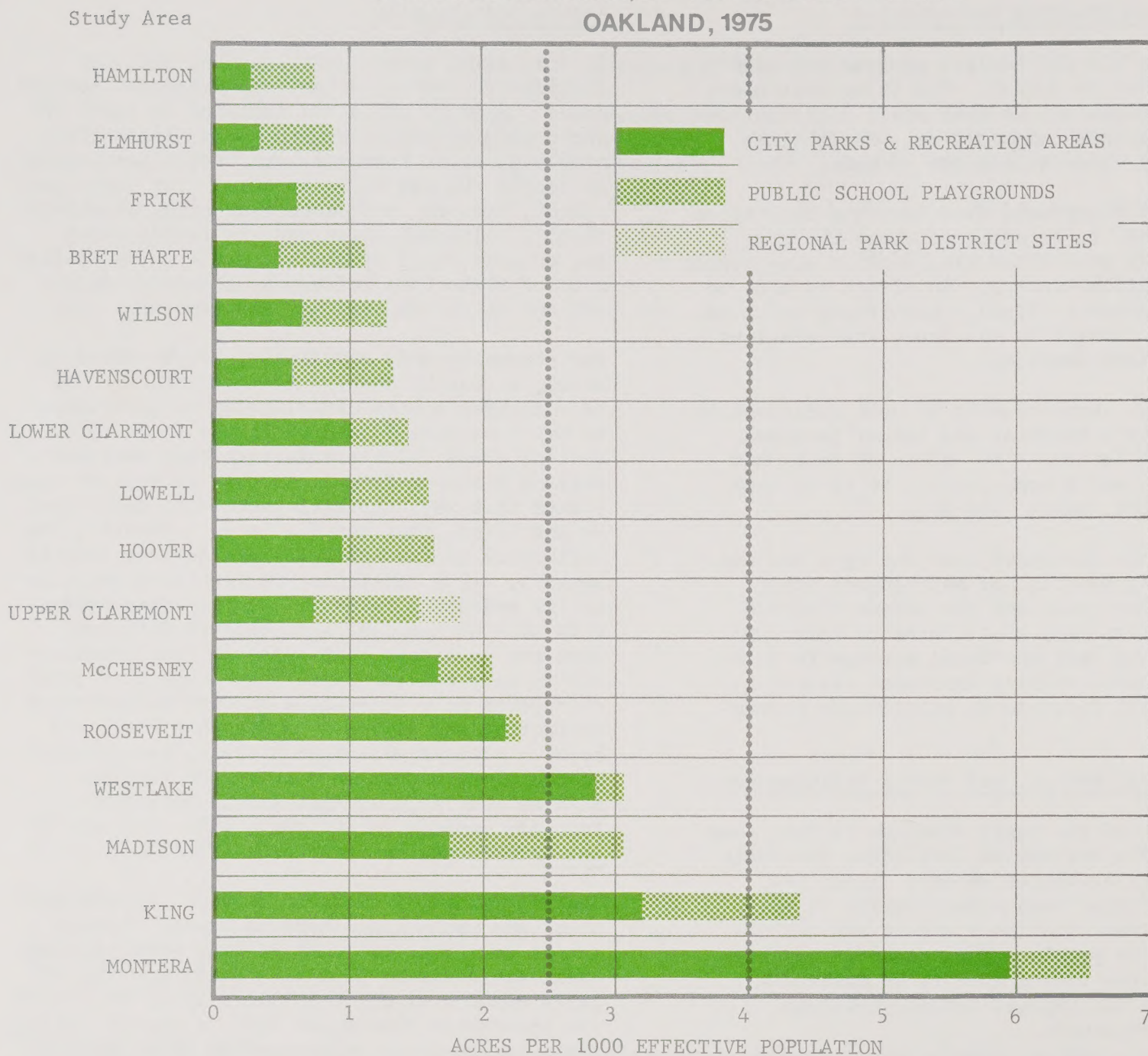
For community and, especially, neighborhood sites, access by foot is more important. One can discover access deficiencies by going back to Map 5 on page 50 and outlining those residential areas which are farther than some desired distance from any usable recreation space. Viewed this way, the hills seem more deficient, by and large, than the flatlands. However, the deficiency in the hills is less serious than it appears, since densities are low there and automobile ownership is high. On the other hand, much more of the flatlands becomes deficient when one considers what types of facilities are within easy walking distance. There is a great difference between being a quarter mile from attractive and diversified Mosswood Park, and being a quarter mile from a bleak, paved-over school playground. In much of the flatlands, such as the large section around Seminary and Bancroft Avenues, playgrounds like this are the only usable public recreation areas.

The importance of distance depends also on the local age pattern and housing types. Severe access deficiencies occur in many sections where there are clusters of multi-family housing and large numbers of children under 10 or 12. Often the apartments themselves have no play space and there are no parks or recreation areas within a distance reasonable for small children.

Another kind of access deficiency concerns some sites which are obscurely located and hard to find. Arroyo Viejo Center is one example.

Figure 5

**TOTAL ACREAGE, PER 1,000 POPULATION, OF USABLE
PUBLIC NEIGHBORHOOD & COMMUNITY PARKS &
RECREATION AREAS, BY TYPE & STUDY AREA :
OAKLAND, 1975**



Figures include usable neighborhood and community public parks and recreation areas and those portions of city-wide or regional public sites which are also substantially usable at the neighborhood or community level. Undeveloped or purely ornamental sites are excluded, as well as "childrens centers" operated by Oakland Public Schools. (However, some sites are included which are not yet usable, but are budgeted for 1974-75.)

Source: Inventories by Oakland City Planning Department and Office of Parks and Recreation, and Oakland Public Schools.

Acreage Deficiencies

One approach to acreage deficiencies considers whether individual parks or recreation areas are big enough. Judging by criteria such as those discussed on pages 52 and 53, most of the City's neighborhood and community recreation centers are seriously substandard. Also, most school sites are undesirably small.

A second approach is to look at the aggregate acreage of all sites in relation to the population served. In 1975, there were within the city limits some 2,556 acres of public parks and recreation areas. (This figure excludes the Oakland-Alameda County Coliseum, the U.C. natural area, the Chabot Science Center operated by Oakland Public Schools, and those college or special-school recreation areas which are closed to the general public.) The total includes 2,157 acres of City parks and recreation areas (2,145 acres being City of Oakland and 12 acres, near Lake Chabot, run by the City of San Leandro); 205 acres of Regional Park District sites; and 194 acres of school or college playgrounds and playfields. Comparing the non-school acreage with a standard of 10 acres per 1,000 population, Oakland has a deficit of more than 1,250 acres.

Oakland is especially deficient in acreage usable at the neighborhood and community levels, as Figure 5 shows. (The totals there exclude land in golf courses and other specialized citywide or regional sites, as well as sites which are undeveloped or purely ornamental. Such land does, however, provide some scenic or other benefits to the areas they are in--and in some ways this makes the areas in the hills relatively better off than Figure 5 would suggest.) Using a guideline of 4 acres (including school playgrounds) per 1,000 population, every study area except King and Montera is deficient. Some areas have only a fourth this much acreage, or less.

Even with a less ambitious ratio of 2.5 acres per 1,000 (which has been used in at least one federal criterion of severe deficiency), 12 of the 16 areas are still substandard.

If these ratios were to be literally achieved in every area, some very big increases would be required as shown by Table 4. Adding up all the deficient areas, over 200 new acres would be needed to get to a level of 2.5 per 1,000--and nearly 750 acres to reach 4 per 1,000.

In looking at these aggregate figures, however, a couple of warnings are necessary. First, an area's existing acreage total says nothing about how the land is distributed within that area. For example, most of the acreage in Westlake is concentrated at Lakeside Park, leaving some parts of this large study area more deficient than Figure 5 might suggest. Also, most of Montera's usable acreage is within a couple of large parks which are distant from some portions of that study area.

Secondly, an acreage figure by itself does not measure the intensity of site improvements.

Investment Deficiencies

To provide a finer measure of recreation supply, the total investment in public recreational land and improvements was calculated. (See Appendix I for cost assumptions and methodology.)

Investment in staff was excluded--partly because, in contrast to facilities, personnel can be re-deployed fairly easily. However, an analysis of current staff investment would be desirable as a further refinement. This could reveal to what extent staffing compensates, or might compensate, for facility deficiencies.

For Oakland as a whole, the total investment in land and improvements (essentially in 1972 prices) comes to \$578 per resident. (Again, the total excludes the Coliseum, the U.C. nature area, Chabot Science Center, and those college or

TABLE 4

AGGREGATE ACREAGE DEFICIENCIES, ASSUMING DIFFERENT RATIOS, IN USABLE PUBLIC
NEIGHBORHOOD AND COMMUNITY PARKS AND RECREATION AREAS, BY STUDY AREA: OAKLAND, 1975

Study Area	Existing Acreage ¹	Additional Acreage Needed to Achieve Indicated Ratio	
		2.5 Acres per 1,000 Effective Population	4.0 Acres per 1,000 Effective Population
Hamilton	33.6	80.3	148.6
Elmhurst	30.7	57.4	109.7
Frick	31.7	51.4	101.6
Bret Harte	19.2	24.6	50.8
Wilson	32.6	31.2	69.5
Havenscourt	16.4	15.2	34.3
Lower Claremont	20.0	15.2	36.3
Lowell	32.0	18.5	48.8
Hoover	26.4	14.1	38.4
Upper Claremont	12.1	4.6	14.7
McChesney	47.8	10.3	45.1
Roosevelt	67.1	7.1	51.4
Westlake	106.0	0.0	32.9
Madison	37.8	0.0	11.4
King	86.2	0.0	0.0
Montera	97.4	0.0	0.0
TOTAL	697.4	206.5	748.8

¹Figures include public school playgrounds, recreation centers, and other usable neighborhood and community parks and recreation areas, and those portions of citywide or regional public sites which are substantially usable at the neighborhood or community level. Undeveloped or purely ornamental sites are excluded, as well as "children's centers" operated by Oakland Public Schools.

Source: Inventories by Oakland City Planning Department and Office of Parks and Recreation, and Oakland Public Schools.

special-school recreation areas which are closed to the general public.) This figure by itself tells us little, there being no standard to compare it with. Such figures are far more useful in measuring relative deficiency. It was for this purpose that per capita investment in usable neighborhood and community parks and recreation areas was computed for each study area. Figure 6 and Map 7 show the results.

The per capita figures range from \$90 to \$487--an amazing spread. The average (mean) investment for Oakland as a whole is about \$206; nine of the 16 study areas fall below this figure. As one would expect, the areas with the lowest investment are generally in the flatlands and those with the highest investment are in the hills. Yet Westlake and Madison are among the better off areas, while Upper Claremont has less investment per capita than some areas in the flatlands. Westlake's position is due largely to the presence of Lakeside Park. Madison's high ranking is surprising at first glance, but it has several good-sized, fairly new recreation areas serving a relatively small population. Upper Claremont simply lacks public facilities, with Chabot-Rockridge Recreation Area being the only significant locally-oriented site.

It is also very significant that the five worst off study areas are in or next to East Oakland and Fruitvale.

FACTORS AFFECTING RESOURCE ALLOCATION

Resource allocation involves several kinds of issues. These include how much to spend on parks and recreation in the aggregate; how much to allocate to different types of park or recreation facilities and programs; and how much to spend in each geographical area. Resource allocation may also involve choosing between specific sites.

In making these decisions, the various types of deficiencies discussed above are of basic

importance. However, especially in the short run, other factors must also be considered.

The state of the City's (or other relevant agency's) financial resources is obviously of great importance. This involves not just the means to pay for facilities, but also the ability to staff and maintain them adequately.

One must also consider the full range of other needs, such as police and fire protection, storm drain improvements, and housing assistance. Needs like these are constantly competing with recreation for the limited public money (except for those funding sources, like Regional Park District tax money, which are specifically earmarked for recreation).

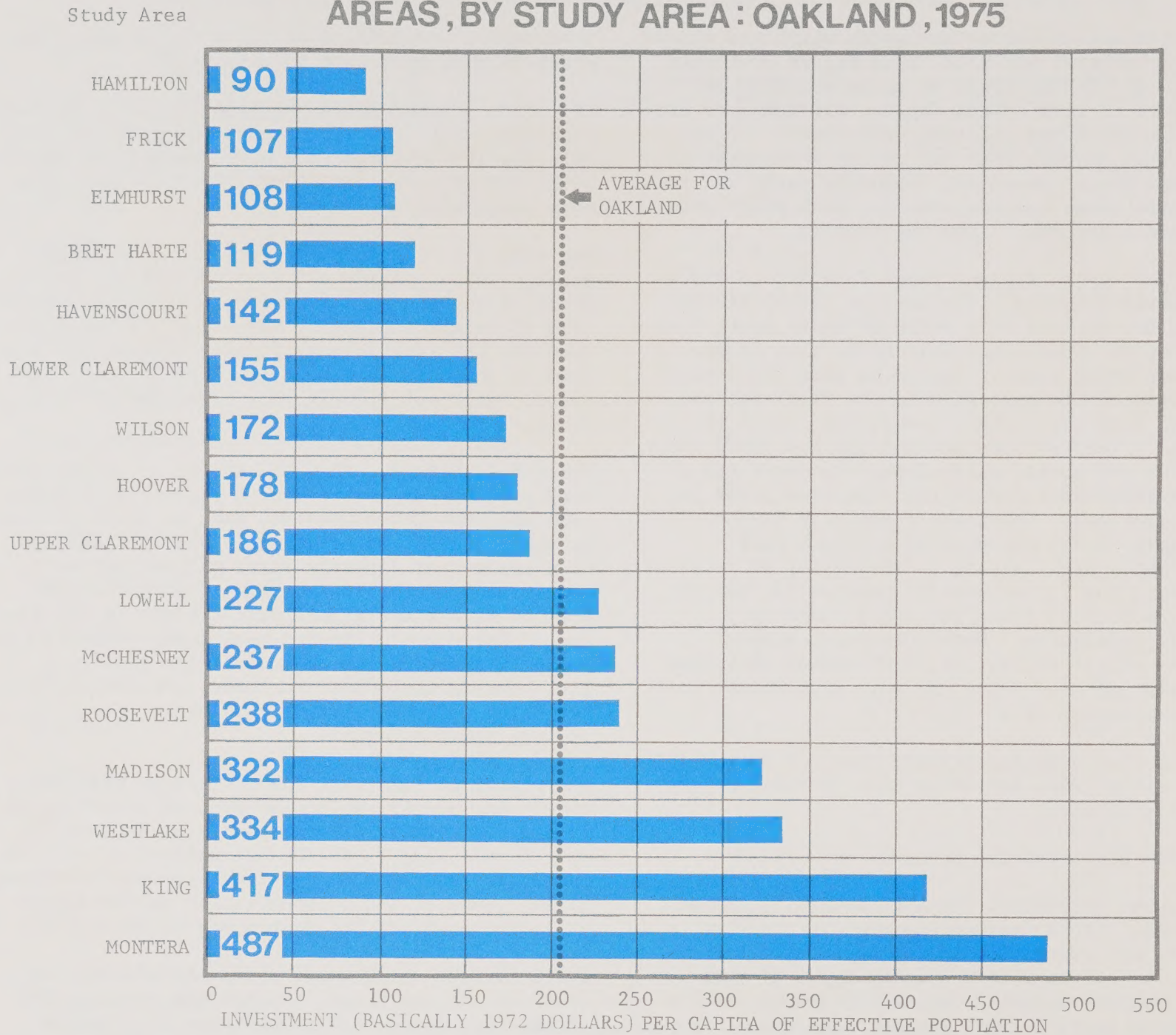
Sometimes, however, they may not be in competition. Some projects may serve both a recreational function and some other purpose, such as flood control or the conservation of valuable wildlife habitat. Even aside from directly multi-purpose projects, it may be desirable to coordinate a recreation project with other significant actions in the same area. For example, needed park space could be provided in a deteriorating area at the same time that housing assistance and code enforcement efforts are being made there. Doing so might help stimulate private rehab efforts.

The timing of some park and recreation projects--namely the repair and replacement of deteriorated or damaged structures, equipment, or landscaping--will depend largely on the age pattern of existing facilities and on such events as accidents or vandalism. Some of these expenditures may be deferrable for a while, but others may be urgent.

Other factors which could affect scheduling, at least in the short run, include the availability of matching funds or the existence of a unique site opportunity. For example, a large vacant lot suitable for a park may be available, but private development--or a major price increase--can be expected unless the land is acquired right away. In such a case, it may be desirable to acquire the

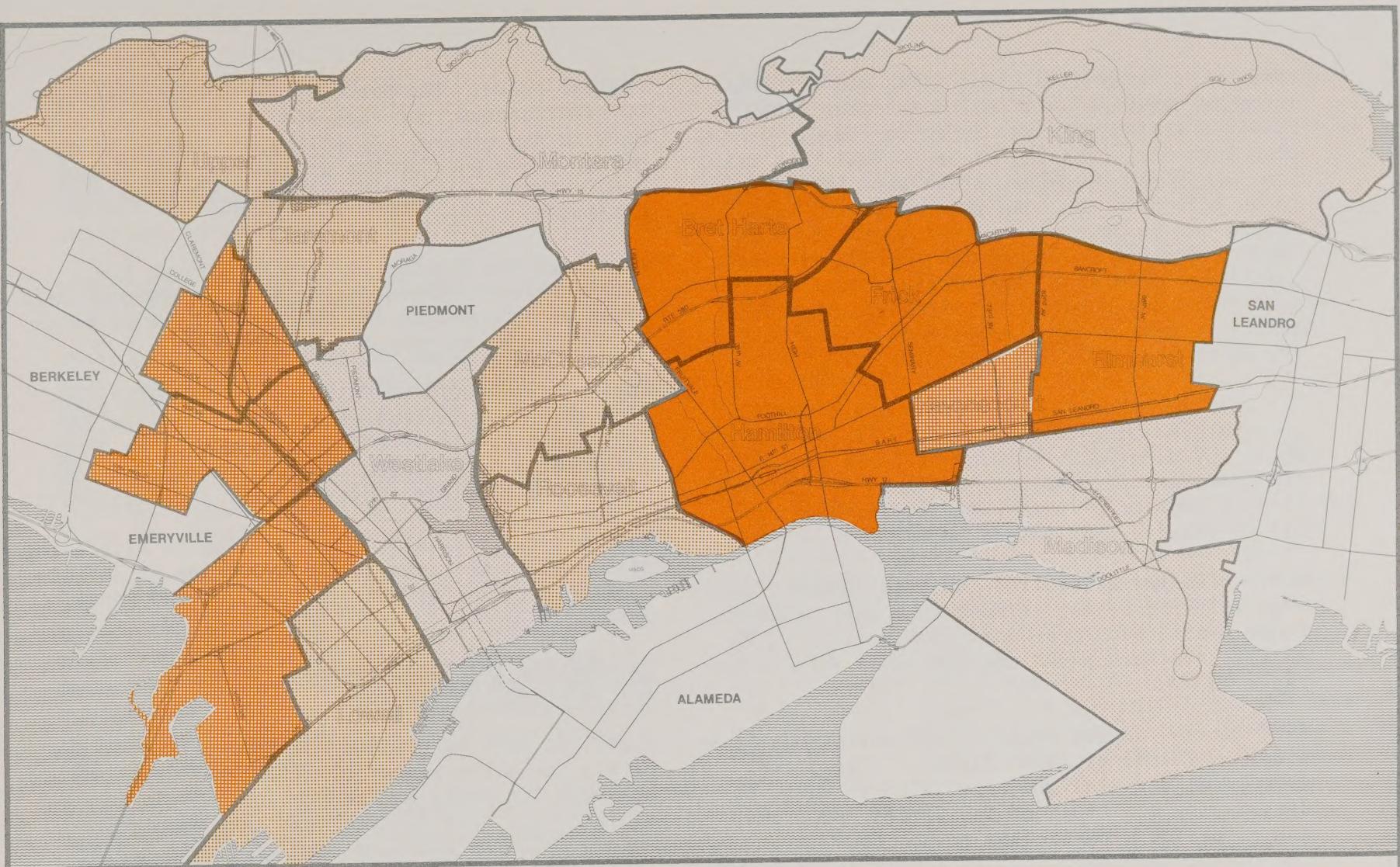
Figure 6

PER CAPITA INVESTMENT IN USABLE PUBLIC NEIGHBORHOOD & COMMUNITY PARKS & RECREATION AREAS, BY STUDY AREA: OAKLAND, 1975



Figures include land and improvements of public school playgrounds, recreation centers, and other usable neighborhood and community parks and recreation areas and those portions of city-wide or regional public sites which are also substantially usable at the neighborhood or community level. Undeveloped or purely ornamental sites are excluded, as well as "children's centers" operated by Oakland Public Schools.

Source: Inventories and estimates by Oakland City Planning Department and Office of Parks and Recreation, and Oakland Public Schools.



Map 7

Per Capita Investment in Neighborhood and Community Recreation Facilities by Study Area, 1975



Investment is basically
in 1972 dollars



land immediately even though this means spending more money in an area, in the short run, than the area's relative deficiency would otherwise indicate. The rationale is that this will save money and therefore allow more deficiencies to be filled in the long run. However, this should not be done simply because the land is there and could meet some minor need. Rather, priorities should be significantly rearranged only where the opportunity is clearly the best chance to meet a major deficiency, either existing or in the foreseeable future.

The relative cost of a park or recreation project is also of concern. If fees can be charged these may eventually recover at least part of the investment. Some projects such as installation of automatic sprinklers may actually pay off in reduced maintenance costs.

Where resource allocation involves choosing between specific sites, it must take into account those sites' own locational and physical suitability--factors which are discussed further on pages 71-73.

Last but not least, resource allocation must consider expressed citizen opinion. Suggestions from local citizens are especially valuable in determining the types of facilities, programs, and sites for a particular area. However, the pattern of complaints by itself is an insufficient model for allocating resources. That pattern may depend in part on temporary conditions or fortuitous events. Some neighborhoods or population segments may have effective leadership at the moment, while others may still be unorganized and unable to convey their equally real needs. The City has a responsibility to the latter, also.

AN APPROACH TO RESOURCE ALLOCATION

A proper balancing of all the above factors requires a systematic approach. The one suggested here can be thought of as a series of steps, although these may not occur in strictly chrono-

logical order. The process will need to be partly simultaneous, and each step will provide feedback to the others. It will also need to be ongoing, since the factors themselves will change from year to year as expenditures are made and conditions change.

(Although the discussion here focuses on the City's allocation process, a similar approach will often be appropriate for the other agencies which provide park and recreation resources.)

This process could be followed in allocating expenditures for facilities by themselves--or for facilities and staff combined. Indeed, in many cases extra programming can, and should, be considered as a possible substitute for new facilities.

Most basically of all, the challenge in allocating resources is to maximize the reduction of deficiencies, existing or anticipated, for the money spent.

Determining the Total Expenditure for Parks and Recreation

First, it must be decided what proportion of the City's (or other agency's) fiscal resources should be spent for parks and recreation. It is impossible to say here exactly what that proportion should be. The decision each year must depend largely on subjective judgment. The proportion will probably need to vary from time to time as major opportunities appear or other conditions change. It can only be said that it should be a significant proportion, since parks and recreation are basic public services and Oakland has serious park and recreation deficiencies.

One way to stretch the available money would be through multi-purpose projects (which may also involve more than one governmental agency). A good example would be a flood control project which also provides a creekside park. Similarly, subsidized bus service from deficient neighborhoods to a regional park could serve both recreational and circulation goals.

Determining Expenditures for Maintenance and Repairs

It must also be decided how much to spend, and where, for maintenance and repair of existing facilities. Up-to-date information on physical condition is important at this stage.

Determining What to Spend at the Citywide or Regional Level

After provision is made for necessary maintenance and repairs, the remaining money is available for projects which increase park and recreation service. The questions then are how much of this to spend on projects with a mainly citywide (or regional) service area--and what types of projects to do at these levels. Again, there are no easy answers.

For comparison, most of Oakland's existing park and recreation investment, especially investment in land, is at citywide (or regional) sites. However, these sites as a class are much less deficient than neighborhood and community ones. To compensate, their future share of City investment should be much less than their existing share.

City expenditures might therefore be allocated between citywide and neighborhood/community projects in rough proportion to the absolute acreage deficiencies at each level. However, the citywide share should probably be even lower since (1) projects at that level will, on the average, involve less intensive improvements and lower costs for new land and (2) the Regional Park District's projects in and around Oakland, though primarily regional in nature, will likely also reduce some of the citywide deficiencies. Exceptions from this formula might be made for citywide projects which also significantly meet neighborhood or community needs.

(Furthermore, the citywide share may need to fluctuate widely in the short run, since individual projects at this level may be quite large.)

The choice of what types of citywide or regional projects to do can be based largely on specific facility (or program) deficiencies at these levels.

Allocating the Neighborhood and Community Share Among the Areas

It must then be decided how much of the remaining money (which is available for neighborhood and community projects) should be spent in each area. To aid in this determination, a formula has been developed based on the best single measure of area deficiency--investment per capita.

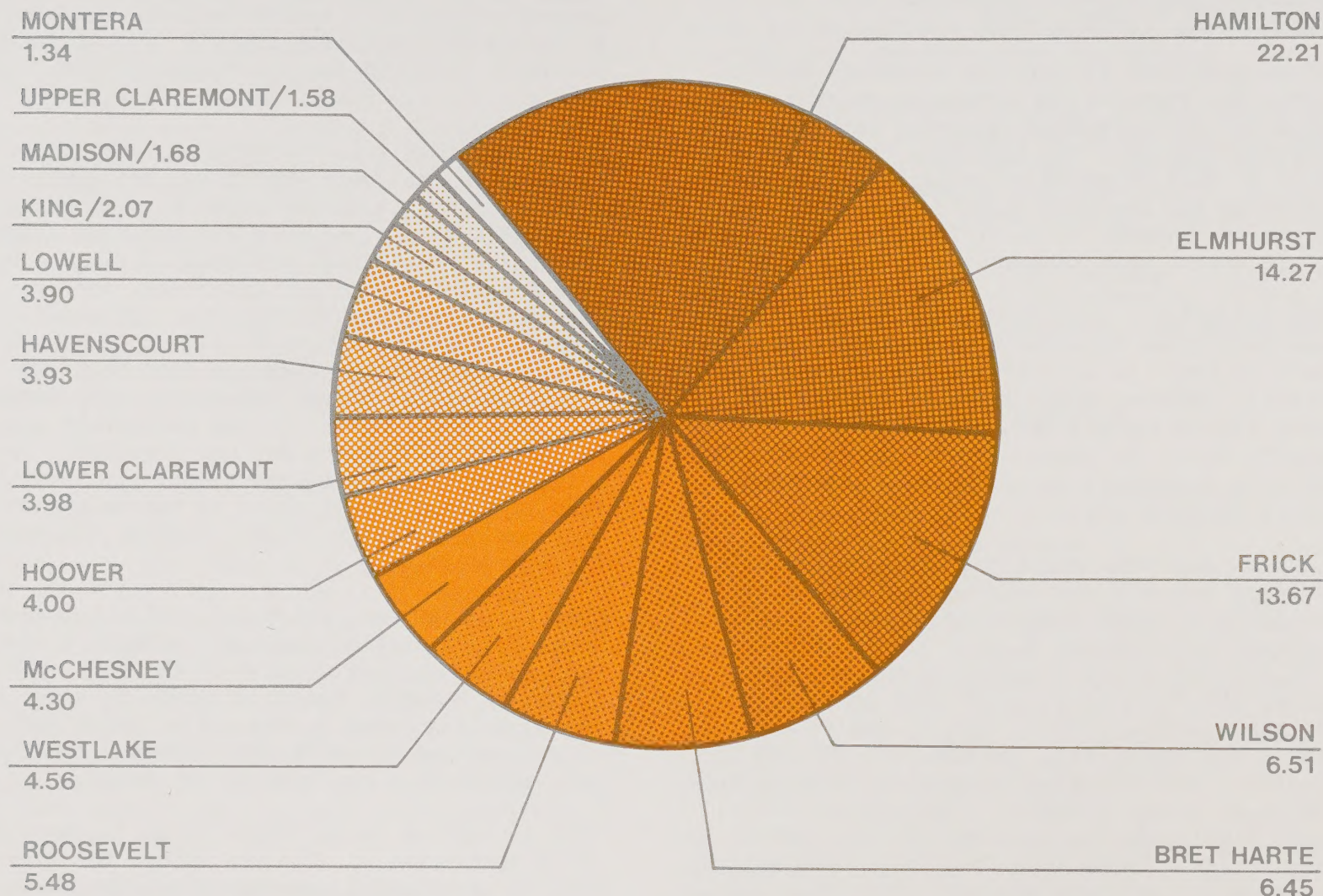
It assumes that the more deficient an area is compared to the "best off" area, the bigger the share of money it should receive. For example, if in 1974 Area A had only half as much investment per capita as the best off area, it should be assigned twice as much new investment per capita. (See Appendix 1 for further description of methodology.) The idea behind this is to remove inequities by improving service fastest in the most deficient areas, though without totally neglecting those areas which are now relatively well off. The per capita figures for new investment are then multiplied by effective population, to translate them into each area's share of the neighborhood-and-community "pie." Figure 7 gives the rather striking results.

Hamilton, Elmhurst, and Frick, which together have about 30 per cent of Oakland's effective population, would receive about half the total allocation. By contrast the study areas of King, Montera, and Upper Claremont in the hills, which have some 11 per cent of the effective population, would get only about 5 per cent of the money.

This allocation is not meant to be followed rigidly or mechanically. For one thing, the shares may need to be adjusted somewhat where it can be demonstrated that a major local deficiency is not adequately reflected in an area's aggregate investment per capita. (This might happen where most of an area's investment is concentrated in one place, leaving some subareas poorly served.)

Figure 7

PERCENTAGE ALLOCATION BASED ON
INVESTMENT DEFICIENCIES BY AREA :
OAKLAND, 1975
(FOR NEIGHBORHOOD & COMMUNITY
PARK & RECREATION AREAS)



Source: Analysis by Oakland City Planning Department.

Also, it is realized that the cost of an individual project will rarely match its area's precise share of a given year's budget. Furthermore, opportunities in particular areas, or the need to coordinate with other public actions, may call for short-run variations.

The approach suggested here is flexible enough to deal with these contingencies. For any given year, the shares depicted in Figure 7 should be viewed as a reasonable starting point from which adjustments may be made, where convincingly justified. What is intended is that these shares be approximated over a span of some years.

Spending the Money Within Each Area

Still one step remains. A general idea of how much to spend for neighborhood and community parks and recreation within each area has been presented. How to spend allocated funds must also be determined.

The people in each area should have a strong voice in this decision. Different areas may wish to emphasize different recreation activities. Some areas may want to stress land acquisition while others may prefer more intensive improvement of existing sites. Still others may want expanded programs and more recreation leaders rather than more facilities.

POLICIES

The following policies are recommended:

1. *The allocation of park and recreation expenditures should follow a systematic process. Most basically this should seek to maximize overall reduction of existing and anticipated deficiencies. In the short run, though, it should also consider such allocation factors as site opportunities, matching funds, and coordination with other kinds of projects. (N)*

2. *The City will devote a very high proportion of its park and recreation expenditures to facilities and programs which serve neighborhood and community needs. (N)*
3. *In general, the lower an area's existing public investment per capita in neighborhood or community-level park and recreation resources, the higher the share it should receive of the new expenditures at these levels. (N)*
4. *The citizens of each area should have a strong voice in considering how to spend the money available for local park and recreation projects. (N)*

Project Location

The specific location of a park or recreation project may determine its success. This is true for capital improvements on existing parkland as well as for entirely new sites.

LOCATIONAL CRITERIA

Among the factors to consider in locating a project are deficiencies, project cost, and expressed citizen wishes, all of which have been dealt with in the last section. The discussion below emphasizes other, generally more physical factors. These are site characteristics, accessibility and visibility, and land use.

Site Characteristics

Basically a site should contain enough space--of the right shape, grade, and other physical characteristics--to allow its use for the desired activities. This can be determined by a quick sketch plan for any potential site.

Differences in size and shape of sites can offer both advantages and disadvantages. Large sites are usually more economical to develop than small

ones, and make it easier to give a feeling of being away from the city. On the other hand, a large site may be hard to find or assemble, and spaces in its interior may sometimes pose security problems. A long, narrow site, if developed into a linear park, can bring recreation space close to more people. However, it is too narrow for some forms of recreation and it, too, may sometimes raise questions of security if it runs for long distances away from public view.

Ease of development will also be affected by a site's topography, the availability of water and other utilities, the soil conditions, and hazards such as landslide potential. (On the other hand, low intensity park use--rather than urban development--may be appropriate on certain lands subject to geologic or seismic hazards.)

Development costs can be significantly reduced, though, where a site already contains things like unique vegetation or topography. Such features are particularly important for those parks or trails which serve the whole city or region and which have specialized requirements such as the presence of natural habitat or a body of water. For them, location will largely depend on where the required features exist. For community parks and recreation areas, and even more so for neighborhood ones, convenient access from their respective service areas is a more compelling factor, and the necessary on-site amenities may have to be created artificially. Even for community and neighborhood projects, though, a location with such features as mature trees or interesting changes in elevation gives a vital headstart.

Locating parks on such properties will help to conserve natural resources as well as to enhance the recreation experience. The conservation goal, however, implies constraints on the location of some types of recreation. Intensive recreational uses should be kept out of sites which contain delicate plant and animal communities. The activities in

sensitive areas should be those, such as hiking and birdwatching, which are compatible with and oriented to the natural environment. At certain critical places, such as marshes or nesting areas, all physical public access may need to be banned.

Accessibility and Visibility

A park or recreation area should be conveniently accessible to its users. This might suggest a location in the middle of the service area. However, this model needs to be adjusted to reflect local density and circulation patterns. What is desirable is that each project take these factors into account so as to maximize accessibility from its particular service area--and also to help achieve the City's policy of reducing over-reliance on the private automobile.

This general rule will mean different things for different kinds of sites. For a neighborhood park or playground, the most important concern is good pedestrian access, though some users will bicycle or even drive to it. For the typical community park or recreation area, pedestrian access is still significant but the site should also be easy to get to by bikeway, mass transit, and auto; this suggests a location on or near a major street. For most kinds of citywide or regional sites, many users will be coming by automobile, although it is important to offer alternatives in the form of good bikeway, pedestrian, and (especially) mass transit access.

Many neighborhood sites or facilities will be used mainly by younger children. Wherever feasible, these should be located so that the children do not have to cross a busy street to reach them. In any case, a location directly adjoining an arterial street is usually undesirable unless adequate fencing, buffer areas, or other separation can be provided.

For some parks, with either limited room or sensitive natural conditions, it may be desirable to exclude cars from the site itself. This may suggest locating the parking at a staging area outside, with special transit service.

For plazas in nonresidential areas, these areas' specific circulation facilities are particularly relevant. This suggests locations at or near BART stations, important bus stops (especially transfer points), and major parking garages.

Recreational bikeways and pedestrianways, besides being recreation facilities, are themselves means of access. (In many cases these routes will consist of bike lanes or specially designed sidewalks along streets, but in other situations they may be on completely separate rights-of-way). If appropriately located, they can help provide access to parks, schools, and other major destinations.

A site may be accessible but not readily visible. This situation may be desirable for facilities where a feeling of seclusion is important. On the other hand, it can create security problems in some cases, and a hard-to-find location can reduce patronage. Visibility from some major travel route is desirable for most community, citywide, and regional sites, which seek to draw users from relatively long distances. Even for neighborhood sites a fairly prominent location, such as the intersection of two important local pedestrian routes, is often desirable.

Land Use

Compatibility with the adjacent land uses is an important locational factor. This will vary somewhat for different kinds of parks or recreation areas. A landscaped open space or passive recreation area can be a good next-door neighbor to housing. A large active recreation space which produces noise and draws big crowds generally is not. Unless an adequate buffer strip (or other separation) can be provided next to the houses, this kind of recreation space may be better located next to some nonresidential use. On the other hand, some types of adjacent land uses--unsightly scrap yards or noisy industrial plants, for example--may make a location undesirable for park or recreation purposes.

(However, it may sometimes be appropriate to use a park or recreation area to separate two or more

other land uses which are incompatible with each other. For example, a park could be located between abutting residential and industrial districts.)

For most kinds of parks and recreation areas, a location next to a local civic building--especially a school--is desirable. This will both enhance the site's identity and encourage patronage. Plazas in nonresidential areas should be close to the employees or shoppers they serve, so locations in or next to major retail clusters or other building concentrations are appropriate. A location next to a commercial center may also be desirable for intensively used community or citywide parks or recreation areas.

Another factor to consider is the alternative uses, whether existing or future, for the potential park site itself. For example, it may be more desirable to retain existing housing on a site than clear the site for a needed park. In another circumstance, the needs of shipping and other shoreline uses might outweigh the desirability of a water-oriented recreation facility along some portion of Oakland's shoreline.

CONVERSIONS TO NON-PARK USE

The location of nonrecreational projects is also relevant. There may be temptation, for example, to encroach on existing parkland for a street widening or a building such as a fire station. Such conversions should be allowed only where there is clearly no reasonable alternate location--and then only if the lost land or facilities are replaced by ones of at least equal value and capacity.

Some changes, though, may be desirable from a recreation viewpoint. A minor boundary adjustment, taking land from a park at one point but adding to it elsewhere, can sometimes improve the park's configuration and therefore its recreational value. Also it is possible for a park to outlive its usefulness. An example might be a playground in an area where homes have been replaced by industry. It might then be desirable to sell the land, if adequate substitute facilities could be provided

in a better location.

Because of its location and popularity, Lakeside Park is particularly susceptible to proposals for additional facilities. It already contains several sizable buildings, and a few years ago a parking garage was proposed within it. Any large new building, even one which serves recreational purposes, would undesirably reduce the park's existing intensively used open space.

POTENTIAL SITES

In searching for locations which meet the criteria discussed earlier, potential sites need to be considered systematically. Of special interest are opportunities where a site can be acquired or developed at relatively low cost.

On the other hand, an available site--even free land--is not necessarily an opportunity. It might be the wrong size or shape, for instance, or hard to get to. A potential site must always be judged in terms of locational criteria, as well as financial resources and overall policies and priorities.

Existing Parks and Recreation Areas

Existing parks and recreation areas provide the greatest opportunity for projects. Many park and recreation areas, or sections of them, could be used much more effectively.

The best means for achieving more effective use will vary from site to site. At some, new facilities may be needed. At other sites the prescription may be for better maintenance or security--or improved access. Sometimes the need may be only to let people know what the site has to offer. Special events or festivals might be scheduled at a little-used park to introduce it to potential users.

One prominent site which could be used better is City Hall Plaza. Though near to thousands of employees and shoppers, this pleasantly landscaped area is chained to prevent public access. A redesign could create generous spaces for "brownbag"

lunches, relaxation, or civic gatherings.

Another example is unimproved Shepherd Canyon Park, where provision of some recreation facilities would be needed (in addition, perhaps, to publicity and transit or bikeway access). At Knowland Park--so near to East Oakland's deficient neighborhoods--facilities could be added in some undeveloped portions, and bus service might be increased. Still another example is underused Greenman Field, adjoining Lockwood School, which might be redesigned to serve as a neighborhood recreation center.

Most public school yards could be used better, either quantitatively or qualitatively. At some of them, playground hours could be extended. At most of them, the quality and diversity of recreational experience could be improved by adding landscaping and a greater range of facilities and programs.

It may also be possible to make fuller use of private school playgrounds and gyms, or other privately owned recreation areas, either through public lease or purchase or via joint-use agreements. Examples of possible locations are St. Elizabeth's playground and gym in the Fruitvale area, and the Concordia High School playfield across the street from Frick Junior High School.

Street Rights-of-Way

Some streets might be closed (either permanently or at certain hours) to allow creation of a park or play area. Though such a closing would be dependent on careful study of traffic, this approach can offer a valuable alternative to the clearance of developed property for park sites. Opportunities may occur in situations where a street section, especially one with low traffic, lies between an existing park or playground and some other use which does not need vehicular access from that street. One such opportunity has already been seized: the section of Alice Street which runs between Lincoln School and Lincoln Recreation Center will be closed for recreational use. A future opportunity would be the closure of San Pablo Avenue at City Hall Plaza.

(Rather than full closure, a narrowing of the right-of-way may be practicable for some very wide streets. The space thus freed might be used for small parks or plazas.)

Even without closing, many street rights-of-way have a significant recreation potential. Changes could be made within the right-of-way, such as sidewalk widening and beautification, tree planting, or creation of attractive bikeways and pedestrianways. Such approaches may be especially promising for (1) streets in high-density areas, such as Ninth Street in the Central District, and (2) wide streets, such as Stanford Avenue with its unsightly, unplanted median strip.

Publicly Owned Vacant or Open Property

Another major category of potential sites embraces the many vacant or open parcels which are in public ownership. Some of these are surplus lands from a past street widening or other project, or have been acquired for some future one. Other parcels have come into public ownership due to nonpayment of taxes. Still others contain permanent open facilities, such as reservoirs, which might be compatible with joint park or recreation use.

The category includes much of the ecologically significant land at San Leandro Bay and the Emeryville Crescent. In the hills, examples include the Claremont Canyon portion of the U.C. natural area, where the presently informal public use might be enhanced by formal park status; the nearby EBMUD watershed just beyond the city limits; the State- and City-owned open land along the freeway below the Caldecott Tunnel; and the publicly owned parcels along Skyline and in Shepherd Canyon. The surface of EBMUD's covered reservoir next to Hellman Park might be used for recreation or visitor parking (though it still has not been fully established whether the reservoir could support the loads involved).

Other, generally much smaller sites exist in the flatlands. Examples include the Flood Control District rights-of-way along the

buried sections of Temescal Creek between San Pablo Avenue and Adeline Street and just above Clifton Street; the Department of Motor Vehicles parking lot at Cavour Street and Miles Avenue, which might be used as a play area on weekends and evenings; the State property at the northwest corner of the MacArthur/Grove-Shafter freeway interchange, which could be made into a small park as two other corners already have been; a couple of Flood Control District parcels near 38th Avenue and Peralta Creek; and some underused or surplus parking lots on 37th and 38th Avenues near Fruitvale BART station. A much larger parking area, the one at the Coliseum, might be used at times for specialized recreation activities like model airplane flying.

Surplus publicly-owned parcels can be found along various street widenings. These are often inappropriate for neighborhood playgrounds because of the heavy traffic and because such parcels are usually shallow. However, they may be worth looking at where other sites are unavailable. Another possibility is to keep such surplus property for landscaping to enhance the street's appearance.

Some public schools have been (or soon will be) demolished, and all or parts of these surplus sites might be considered for park or recreation use. Of special interest is the former college campus on Grove Street.

Creeks

The remaining open creeks in Oakland, most of which are in private ownership, offer many park and recreation opportunities. They could be the setting for pleasant creekside walks or bicycle trails, opening out at intervals to bigger recreation spaces. This concept looks especially promising since the creeks often flow past existing parks or recreation areas, or other kinds of potential park sites.

For example, Sausal Creek connects existing Dimond, William Wood, and Sanborn Parks and several public schools. Arroyo Viejo links Knowland



Park with the Holy Redeemer College site, Castlemont High School, and Arroyo Viejo Recreation Center. Another stream that connects many things is San Leandro Creek--of special interest as the only creek which is continuously open from the hills to the Bay.

Even shorter open sections, like the remnants of Temescal and Glen Echo, offer park opportunities which could be very significant at the neighborhood scale.

Privately Owned Vacant or Open Property

Aside from creek rights-of-way, there are many privately owned vacant or open parcels with park or recreation potential.

Some of the larger examples include strategic shoreline properties adjoining San Leandro Bay and the Emeryville Crescent; the canyon and other ecologically significant parts of the Mountain Village property (educationally valuable, too, because of their nearness to Merritt

College); the central part of Claremont Canyon; some lands near Round Top-Sibley and Redwood Regional Parks which might be added to those sites; and the unused portion (formerly playfield) of the Holy Redeemer College campus on Golf Links Road. Some vacant parcels in Shepherd Canyon could become part of a trail there. Through a joint-use arrangement, the nearby P.G. and E. power line right-of-way might also form part of this trail.

At least part of the quarry above the MacArthur Freeway might be considered a potential park site; with proper planting, the dramatic gashes in the hillside might be changed into an asset.

Some of the potential sites in the flatlands include the institutional property, with its many mature trees, on 42nd Street next to Oakland Technical High School; the vacant tract at the end of Maldon Street near 62nd Avenue; the railroad right-of-way extending, for several blocks, southwest from Bancroft between 104th and 105th Avenues (service on this line has been abandoned); and the vacant property at 105th and Edes Avenues. Many other possible sites could--and should be--listed.

Especially in certain neighborhoods, some owners will probably be willing to donate free lots where there is no ready market for the land or where a loss can be claimed for tax purposes.

Also, conceivably, large parking lots at industrial plants or shopping centers might be available as neighborhood play areas at certain hours.

Future Rebuilding Areas and Street Widenings

Some kinds of park and recreation opportunities do not exist yet but may result from future large-scale clearance projects (either planned or proposed) done for nonrecreational purposes. Part of the land cleared in these projects could be reused for parks and recreation.

Redevelopment areas, such as City Center and Chinatown, are obvious examples. Large-scale rebuilding, which may or may not involve public "redevelopment" as such, may occur in other areas such as those near the Lake Merritt and Coliseum BART stations. The Port of Oakland expects to renew several sections of the waterfront to allow more efficient shipping, marina, commercial, or airport use. (In particular, its planned renewal of the Brooklyn Basin area will allow the consolidation and intensification of marina and commercial recreation activities, with public shoreline promenades and fishing or sitting areas in many places.)

Clearance may also occur along future street widenings--specifically portions of 35th Avenue, Hillmont Drive/73rd Avenue, and (especially) 98th Avenue.

Other Potential Sites

Another type of potential site would be properties containing abandoned or dilapidated houses--which are scattered throughout the flatlands. Where tax or mortgage payments have not been kept up, a number of such properties have reverted to the County or to lending institutions. Some savings and loan firms have indicated a willingness to donate

such property for recreational use.

Other developed parcels--even though their use would require clearing significant structures--may be good potential sites because of their size, nature, or strategic location. One such opportunity was the battery factory at 98th and Bancroft: the only industry in a residential neighborhood, and located right between Cox School and the vacant parcel at 96th and Bancroft.

Many developed private lots have unused recreation potential, at least for their occupants. At many apartment buildings, the yards could be made into more attractive usable open space for tenants. At both apartments and nonresidential buildings, there are many unused acres of rooftops which could become recreational open space.

POLICIES

This section recommends policies dealing with project location. Two of them refer to maps, and these need special discussion.

The map which is entitled Citywide and Regional Public Parks and Recreation Areas (Map 8) does not show bike lanes or other recreation facilities which are in street rights-of-way. Nor does it depict parks, recreation areas, or trails which primarily serve a local neighborhood or community. It would be presumptuous to pinpoint the location of future neighborhood and community sites. Their locations should be governed by the verbal policies recommended here, but detailed site selection must come after future area-by-area study and discussion.

However, it is appropriate to show sites with a primarily citywide or regional service area. Several new sites of those types are shown on the map. Even these, though, should be subject to continuing study, which could result in adding or dropping some sites. At any rate, the map distinguishes between "proposed" locations which are more or less definite and "suggested" ones which especially need further evaluation. Furthermore, the map does not specify when the new parks or

recreation areas should be created--or by whom. Some of them may have to wait a long time for funding. Many of the new sites may be acquired or developed not by the City, but by the Regional Park District or other agencies.

The new sites depicted on Map 8 are discussed below:

1. Large, regionally important parks are proposed at San Leandro Bay and around the Emeryville Crescent. At both of these, it is expected that preservation and viewing of wildlife habitat will be major theme. However, many other recreation activities which are compatible with this theme--such as hiking, bicycling, picnicking, or fishing--are desirable here.
2. Shoreline walks or trails, with plazas and viewing or fishing areas where appropriate, are envisioned in the area east of Jack London Square and around much of Brooklyn Basin. (Expansion of Jack London Square is also shown.) These will probably be provided in conjunction with waterfront development, which will likely also include restaurants, marinas, and other commercial recreation.
3. New sites are also shown at some other waterfront locations. One of these is a suggestion for some kind of shoreline park or recreation use near the Airport Terminal Building, for use by its thousands of visitors and employees. Its location and development would need to be compatible with future Airport plans, and matters of security will have to be carefully considered.
4. Public park or recreational use (mainly trails or natural preserves) is proposed for part of the "Mountain Village" property, and suggested for parts. The extent of public acreage will depend on the form of private development here, and the degree to which development preserves scenic and ecological values.
5. In Claremont Canyon, another large natural park could be created by combining now-private land with existing public parks and part of the U.C. natural area. This concept (which needs further evaluation) was first advanced a few years ago in a study by the Claremont-Elmwood Neighborhood Association.
6. West of Claremont Canyon, the lower portion of the Schools for the Deaf and Blind property is suggested as public open space so as to reflect Berkeley's Master Plan policy.
7. Just beyond Oakland's upper city limits, the map depicts several planned or possible extensions of the regional parks.
8. Along Skyline Boulevard, the map schematically reflects a recent Council decision to retain many of the City-owned parcels here. Most of these will probably remain as natural open space to protect this parkway's scenic quality, but viewpoints or picnic areas may be developed on some.
9. In the Shepherd Canyon area new sites are shown to provide for a trail system and other facilities. In the upper part of the canyon, a trail connection is suggested which would lead up to Huckleberry Regional Preserve.
10. Some form of park or recreational use is suggested (if feasible) above the reservoir next to Hellman Park.
11. New sports centers (which will also include other facilities such as picnic areas) are proposed at the Holy Redeemer campus and near Caldecott Tunnel.
12. Most of the steep, publicly owned open land near the Caldecott site is suggested for retention, to protect the scenic quality of this major gateway to Oakland.
13. Major trails or linear parks are suggested (or proposed) along San Leandro, Arroyo Viejo, and Sausal Creeks.
14. A new park or trail segment is proposed along the Lake Merritt Channel, to complete the link between the Estuary and the Lake.



CITY OR REGIONAL PARK DISTRICT SITES

-  Existing (1975)
-  Proposed
-  Suggested (Further Evaluation Needed)
-  Possible (If Private Operation Ceases)

COLLEGE OR SPECIAL-SCHOOL RECREATION AREAS



OTHER SITES



Map 8

Citywide and Regional Public Parks and Recreation Areas

Notes:

1. Boundaries of future sites are schematic.
2. At existing sites, minor boundary adjustments or extensions which improve the site's value may be appropriate.
3. Additional plazas or other small sites may be appropriate.



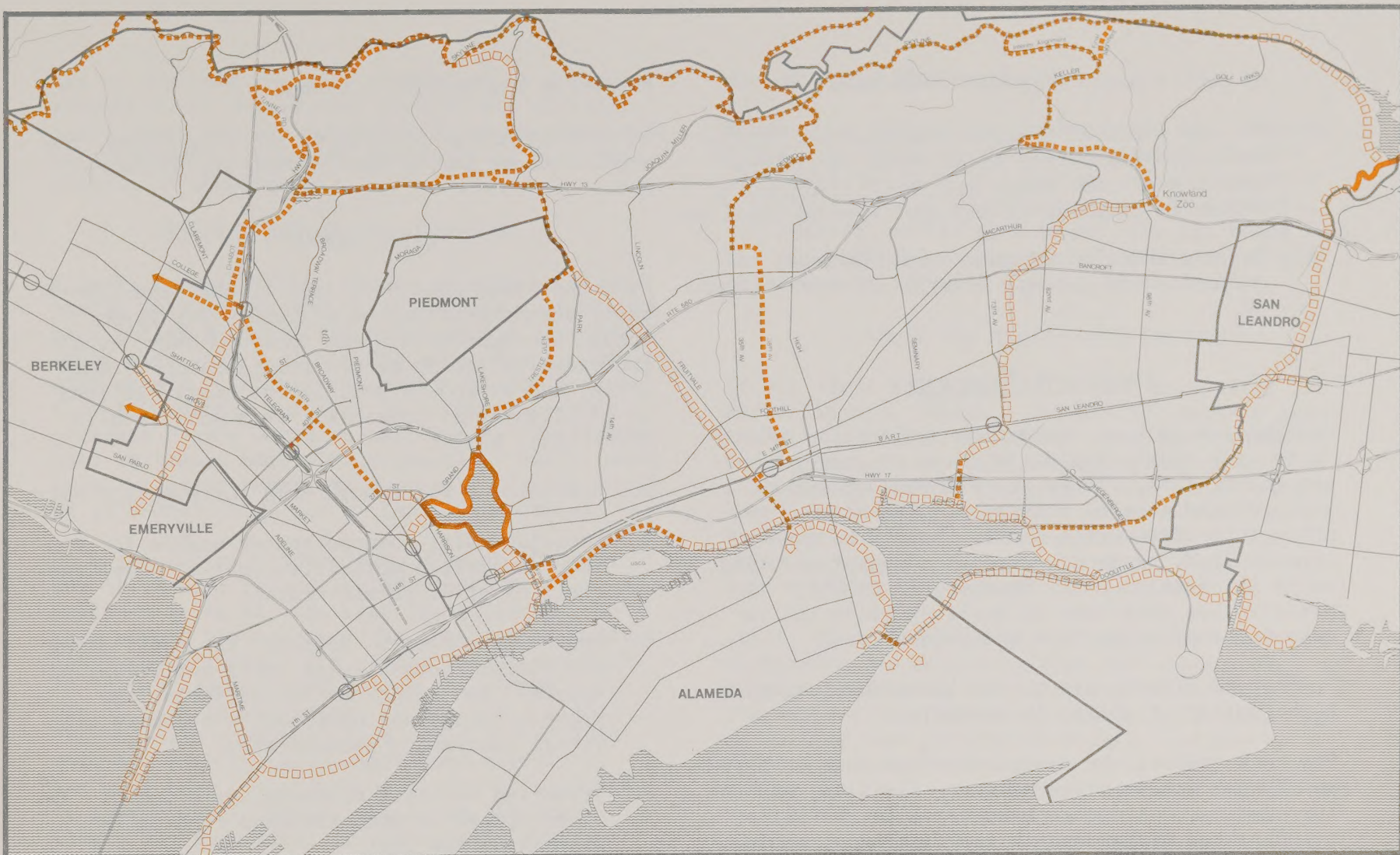
Base Map © 1984/2001 by North American Maps, San Francisco, CA. For use by City of Oakland only. Reproduction of map or portions thereof without the written permission of North American Maps is prohibited.

15. New plazas or other small parks of citywide or regional importance are shown at some places in the Central District. However, the map acknowledges that additional ones may be desirable at other locations.
16. The map reflects the possibility of future acquisition at the Claremont or Sequoyah Country Clubs (see policy 12 below).

The map of Recreational Bikeways (Map 9), which is based on recent circulation studies by the City, shows bike routes within street rights-of-way as well as those on parkland or separate rights-of-way. It does not show routes used mostly for commuting to work, nor does it depict short bikeways which might be significant at a neighborhood or community scale.

The following policies are recommended (see also page 55 for park or recreation sites dedicated by a subdivider):

1. *Wherever practicable, park and recreation projects should be located to take advantage of, and protect, unique or valuable trees, wildlife habitat, topography, and other natural resources. (N)*
2. *Linear parks, with creekside walks or bike paths, should be developed along several streams or sections thereof. (M)*
3. *Public and commercial recreational uses should be located at many different places along Oakland's waterfront, although these locations should be compatible with the reasonable needs of shipping, navigation, commerce, and industry. (M)*
4. *As much as practicable, each park or recreation area or facility should be located so as to maximize accessibility from its service area, and to minimize reliance on the private automobile for travel to it. (N)*
5. *Wherever feasible, neighborhood park and recreation areas and facilities which are intended primarily for younger children should be so located that the children need not cross a heavily traveled street on their way to them. In any case, such facilities should not directly abut an arterial street unless adequate fencing or other separation can be provided. (N)*
6. *Community, citywide, and regional parks and recreation areas should generally border on, or be visible from, a major trafficway. (N)*
7. *In nonresidential areas, plazas should be located at strategic places such as rapid transit stations, major bus stops, or employer or shopping concentrations. (N)*
8. *Recreational bikeways and pedestrianways should, wherever feasible, provide direct, safe access to parks and recreation areas, schools and colleges, mass transit collection points, and other public assembly centers and points of interest. (M)*
9. *Wherever practicable and compatible with their intended use, parks and recreation areas should be located next to public buildings or activity centers, especially schools. (N)*
10. *Public park and recreation sites should generally be protected from conversion to other uses, except for minor boundary adjustments which improve a site's value and except for sites in locations which clearly are no longer appropriate. In any case, whatever land and facilities are given up should be replaced by new ones of at least equal value and capacity. (N)*
11. *No large new buildings should encroach on the existing open space in Lakeside Park. (M)*
12. *If the operation of Oakland's two large private golf courses should ever be discontinued, the sites should be secured for some form*



Map 9

Recreational Bikeways

- Existing Route (1975)
- Proposed Route (Specific Alignment)
- - - - Proposed Route (Alignment Undetermined)
- BART Station

Notes:

1. Additional routes may be identified upon further study.
2. Map does not depict short local routes, nor commuting or other nonrecreational routes.



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of public park or recreational use. (M)

13. *The map entitled Citywide and Regional Public Parks and Recreation Areas shows the planned location of such lands and facilities with a primarily citywide or regional service area. (M)*
14. *The map entitled Recreational Bikeways indicates the planned location of such routes. (M)*

Project Design

Designing a park or recreation project in Oakland is no easy task. Typically there are severe budget constraints. There are problems of safety which demand careful attention. The size of the project is often quite small. Partly because of limited land, there are demands to adapt existing parks for heavier use. However, it is vital to preserve the amenities of existing sites and to make new ones attractive and enjoyable.

To respond effectively to all these challenges, a high quality of design is essential.

For each project the design solution must be based on the particular types of uses, the site, and the surroundings. A nature study area in the hills, a neighborhood playground in the flatlands, and a downtown plaza will need completely different treatment, making it hard to generalize about project design. Still, some broad principles can be stated.

THE DESIGN PROGRAM

The first step in designing any kind of project is to clearly identify its purpose or function. What activities is it to accommodate? What special site constraints, or assets, should be considered? Is the project intended to serve small children, senior citizens, nearby office workers, or others? At what hours will the site be used most heavily? In other words, a program must be developed which sets forth the problems to be considered and the requirements to

be met by the design solution.

If a clear design program is not formulated, the project could end up not serving any needs very well.

BASIC LAYOUT

Once the needs have been spelled out, the site's basic arrangement can be planned. The layout should accommodate all the intended uses, both individually and in proper relationship to each other, and it should utilize the available land as efficiently as possible. This will involve such things as:

1. providing a big enough area for each activity;
2. creating multi-purpose spaces usable for various compatible activities (either simultaneously or at different times);
3. providing separate "domains" for conflicting activities (such as picnicking and organized sports), and sometimes for different age groups, though not necessarily blocking all visual continuity between them;
4. orienting baseball diamonds, game courts, and other spaces to minimize wind exposure and glare from the sun;
5. locating restrooms or drinking fountains conveniently (though not so prominently that they dominate the site);
6. planning for efficient pedestrian circulation among the various activity areas;
7. providing an area for off-street parking at those sites where parking is appropriate.

Mosswood Park is a good example of how a great variety of spaces --large, small, active, passive, paved, turf, and wooded--can be grouped together both compactly and compatibly.

Flexibility of layout can be important. Spaces

can be designed for easy adaptation to different activities as future user populations dictate. Also, where project funding will become available in increments, it may be necessary to plan for staging of development.

GREENERY AND NATURAL FEATURES

A park, by definition, should provide an alternative environment for city dwellers. It should give relief from the harsh and hectic aspects of urban life, and a chance for some direct contact with nature. Greenery is essential for activities like nature walks or picnicking, but its presence nearby can also make sports like basketball or tennis much more enjoyable. Sadly, many existing playgrounds are just hot, glaring reaches of asphalt bordered by chain-link fences.

As a general rule there should be as abundant and attractive vegetation as possible. Ease of maintenance is an important design factor, but this should not rule out the creation of special landscape effects. The proper amount and type of landscaping will of course depend on a site's uses and location. Conceivably a small, heavily used downtown plaza might be surfaced entirely with brick or other hard materials. Yet even here, some form of planting is usually appropriate. Trees, which can enhance almost any situation, are especially desirable.

For some projects the site will already contain significant vegetation, or other valuable natural features such as a creek. Wherever feasible, such features should be saved and worked into the project design. (See also the general discussion of conservation techniques in Chapter 2.)

IDENTITY

Emphasizing unique natural features is one way to provide identity--something which is desirable for each site but which many existing ones lack. Another way is to capitalize on some nearby landmark building, like a pro-

minent church facing the park.

Where such features or landmarks do not already exist, the designer should add something which will make the site distinctive. Sculpture or a prominent mass of vegetation could be provided, for example, or the park might take its theme from the surrounding neighborhood by using materials or structural details typical of the area.

SAFETY AND MAINTENANCE FACTORS

Safety--from accidents and crime--is a vital factor in park design. One way to increase safety is to maximize visibility from nearby streets and buildings, avoiding dense vegetation and isolated spaces. With mounting costs, it is also very desirable to keep maintenance costs down and to design in "low vandalism potential." These criteria suggest the use of sturdy, easy-to-maintain surfaces, fixtures, and plant species.

Still, there are some situations where heavy vegetation and seclusion from the urban scene, or relatively fragile facilities, are necessary for the desired recreation experience. The challenge is to find ways to provide safety, and reduce maintenance and replacement costs, without also ruling out the very features that make people want to visit a park. Besides, a good way to make a park safer is to attract more people to it.

SCREENING AND RELATIONSHIP TO SURROUNDINGS

The project design should not stop at the site's boundaries. In other words, the designer should relate each park or recreation area to the surrounding urban fabric. In some situations he may want to emphasize vistas from within the site--for example, by arranging trees or shrubs so they frame a nearby building. In other cases he may want to screen the site from undesirable neighbors, such as unsightly buildings or signs or a heavily traveled street. He may also want to screen different activity spaces within the site from each other; where off-street parking is provided he will need to separate this visually from the rest of the site.

Fencing can be very expensive, cutting deeply into a project's budget, and it may be visually objectionable in some places. Many other screening techniques are possible, especially in those frequent situations where the need is for partial, not complete, separation. Screen planting of large trees is one method; mounding is another. Furthermore, different types of fencing should be considered. Even where a chain-link fence is required, its appearance can be improved by slatting, topping, or use of a pleasing non-standard color.

DIVERSITY AND INNOVATION

Diversity is a major success factor in park design, just as it is in plant and animal conservation. A park should offer many kinds of things to look at, many kinds of spaces to be in, many kinds of things to do. The stimulation this gives is especially important for children's mental and emotional growth.

No park or recreation area should be boring. It should offer surprises, open-endedness, and features that invite the visitor to explore and use his imagination. These criteria will often call for unconventional types of designs. One such concept is the adventure playground, which encourages users to creatively modify the play spaces and their contents. A related concept is illustrated by Washington Environmental Yard, a complex of varied spaces and activity areas on a formerly bleak school yard on Berkeley's Grove Street.

Even for conventional organized activities, imaginative design is possible. For example, the seating at a baseball diamond could be on grassy mounds instead of bleachers. Experimentation and variety are often desirable, too, for small elements like park benches and light fixtures.

CITIZEN INVOLVEMENT

While park design should involve professional

designers, they cannot and should not do the job alone.

The people who will use the park or recreation area should be involved in its design from the beginning. Citizens might also participate in actual tree planting or site development, and eventually in maintenance and supervision.

Such efforts will encourage local pride and interest in the project, enhance patronage, and discourage vandalism. They will also, of course, help to ensure that the final result actually serves local needs.

POLICIES

The following policies are recommended:

1. *The City will insist on a high quality of design in its park and recreation projects. (N)*
2. *All projects to adapt existing parks or recreation areas for heavier use or for new activities should also be designed to enhance the appearance of these sites. (M)*
3. *Each park and recreation area should be attractive as well as functional, safe, and as economical to maintain as its purposes allow. (N)*
4. *Each park and recreation area should include as abundant vegetation as feasible or appropriate, especially trees. (N)*
5. *Each park and recreation project should be designed with sensitive attention to its surroundings, as well as to any valuable existing features within the site. (N)*
6. *The City will experiment with innovative park and recreation designs and facilities, especially those which appeal to the user's imagination and creative impulses. (N)*
7. *The City will involve potential users as closely as possible in designing the park and recreation projects intended to serve them. (N)*



Action Program

Goals and policies by themselves have little value. They must be implemented. Specific regulatory, acquisition, and other programs are needed.

Certain specific actions have already been identified (see Chapters 2 and 3). Also, various related programs are listed in the City's Circulation, Scenic Highways, and Seismic Safety and Safety Elements and Shepherd Canyon Corridor Plan.

Many of the necessary actions discussed below are already underway.

General Considerations

This section outlines relevant types of programs, and suggests where each will generally be appropriate. It also explores the roles of agencies which will need to be involved, and discusses possible funding sources.

TYPES OF REGULATIONS AND TAXATION TECHNIQUES

Open space can be permanently saved by techniques other than public acquisition. Local

governments may protect land and resources through regulation under their constitutional police power. Indeed, with limited acquisition funds, regulations must carry much of the burden. Taxation practices can also encourage the retention of open space. However, the environmental review process, while also discussed here, imposes no substantive controls because its essential function is to identify a project's impact and suggest mitigating actions.

Noncompensable Regulations

Conventional regulations do not require compensating a land owner. The public interest in controlling the use of his property is assumed to justify the loss, if any, he sustains. However, the scope and impact of regulation cannot exceed certain limits. A property owner must be allowed some reasonable use of his land, unless it seriously affects the public interest. Regulations cannot be imposed solely to depress land values for later public acquisition.

Various laws, such as building and fire codes or grading ordinances, may deal with such things as seismic hazard areas, soil stability, fire-prone vegetation, and discharge of pollutants into the water and air. Zoning can control the location of different land uses, and it can restrict development to a density and character compatible with an area's topography and other physical conditions. In some situations it can even restrict an area to open uses only. Zoning can require developers to provide such amenities as street trees or on-site recreation space, and it can to some degree compel removal of objectionable existing uses. It can deal with lot size and shape, which are also governed by subdivision ordinances. The latter deal with the design, or layout, of land divisions as well as requiring improvements such as streets and utilities.

Subdivision ordinances and many other laws require discretionary review of individual projects. Approval may be granted subject to conditions intended to minimize impact on affected open space or natural resources. Dedication of parks,

accessways, or other land may be required. Some procedures offer incentives in exchange, such as zoning provisions to give a density bonus for planned unit developments.

The "specific plan" authorized by State law offers another technique for dealing with large-scale projects. (These plans might be either regulations themselves, or detailed plans referred to by regulatory ordinances.) Such plans would let the public say in advance what is acceptable, rather than simply reacting to a developer's proposal. For example, they could show which parts of a large site may be used for building clusters, and which hillsides or tree masses should be left intact.

In an open area divided into many ownerships, such a plan might be used with a density transfer. For instance, owners of parcels where the plan shows building clusters might be required to buy development rights from owners whose land is depicted as open space.

So-called official mapping might be used to designate location of a future street, trail, or other public use. Such an ordinance might permanently bar the owner from building on the mapped right-of-way. A different approach would require him to notify the city if and when he wants to build in the future right-of-way, and would provide a temporary delay period during which the city could buy the land in an undeveloped state.

Temporary regulations may be useful in many situations, and their short duration will usually allow much stricter control than in a permanent ordinance. One example would be a moratorium on all construction in an area until a plan for it could be drawn.

Some regulations may be adopted and administered privately. For instance, local homeowners could agree to restrictive covenants which set standards for landscaping and treatment of open spaces.

Compensable Regulations and Taxation Practices

Controls which severely reduce the value of property might be accomplished through compensable zoning. While this approach would require public expenditures, these might be much less than with outright acquisition. Under this approach the owner would be paid (if and when he sells to another) for some or all of the land value reduction traceable to the especially restrictive controls. The concept raises complex issues, but it deserves further study.

Similar possibilities exist with taxation practices. The present heavy reliance on ad valorem property taxes often pressures owners of open land to convert to more profitable urban uses. Abandoning the existing property tax system would immediately reduce such pressures, though that would require changing the State Constitution. Short of that, an approach involving preferential tax breaks such as those allowed by the Williamson Act may be useful. That Act lets a city or county designate "preserves," within which owners can sign a 10-year renewable contract to restrict their land to agriculture (or certain other open uses such as wildlife habitat) in exchange for a tax reduction. The idea is to base assessment on the existing open use rather than the potential developed one. The reduced tax revenues may then be partly reimbursed from the State's Open Space Subvention Act Fund.

Some critics have questioned the Act's real effectiveness in preserving open space, and various improvements in it would be desirable. Meanwhile, an alternative is offered by a little known provision (Section 51050 of the Government Code) which lets a city or county accept 20-year-or-longer open space easements from an owner and then notify the Assessor. Though there is no guarantee whether, or how much, the Assessor will reduce the assessments as a result, this law does provide longer protection and a simpler procedure than the Williamson Act.

Environmental Review

The California Environmental Quality Act (CEQA) requires an Environmental Impact Report (EIR) on most public projects--and private ones needing discretionary public approval--which may have a significant adverse effect on the environment. (The National Environmental Policy Act (NEPA) has similar requirements for an Environmental Impact Statement (EIS) where federal agencies are involved.) The EIR is intended to give valuable information on the project's setting and impact, any proposed mitigation measures, and possible alternatives. As an informational document the EIR is not binding, but it must be considered by the relevant public agency before approving a project.

TYPES OF ACQUISITION TECHNIQUES

A comprehensive action program will also include land acquisition. Again, this may involve various techniques.

One special problem is that for acquisition of some types of nonrecreational open space, State law does not clearly authorize local government to use condemnation powers.

Full Fee Acquisition

Acquiring fee-simple ownership is the most fool-proof way to preserve open space--but also the costliest. The selling price may be high, and public revenues will be reduced because the land is taken off the tax rolls.

Less-Than-Fee Acquisition

The bundle of rights and obligations which makes up a fee simple may be divided up, and assigned to different parties. This means that a public agency can acquire various forms of development rights or easements which convey certain privileges to use or enjoy a property. These may be "affirmative" (such as access easements for trail or recrea-

tional purposes) or "negative" (such as scenic or conservation easements which prevent developing or otherwise impairing the land's natural value). They may even require specific actions like pruning trees.

Such easements have the advantage of leaving the land on the tax rolls, and in some areas they may cost much less to acquire than full fee ownership. However, they can pose administrative problems--and in areas in the path of development it may cost nearly as much to buy an easement as to purchase the land in fee.

Leasing is another form of less-than-fee acquisition. This, too, leaves the land on the tax rolls, but it does not provide a permanent interest in the land.

Purchase and Sale or Leaseback

In some situations it may be desirable to buy land and then sell or lease it back, perhaps to existing owners. The saleback or leaseback agreements would require that the land's natural quality be preserved and specify the limited uses compatible with this. Such techniques can permanently preserve the land as open space, while in some cases involving little if any net cost to the public in the long run. On the other hand, the initial cost may be high.

Installment Sales, Options, and Advance Notice

Whichever of the above approaches is followed, certain techniques may be used to reduce the cost impact--either by spreading the price over time or freezing it at essentially its present level. The former would involve installment sales. The latter could involve options, or variations of official mapping which require notice of intent to develop or sell.

TYPES OF CAPITAL IMPROVEMENTS AND SERVICES

Many kinds of capital improvements and services, public and private, will also be needed. These include providing facilities and programs for

parks and recreation, of course, but also for such diverse needs as water supply, pollution control, and harbor facilities. Even in areas which are to remain as natural open space, various improvements and management techniques will be needed such as fire breaks or predator control.

In some situations, not providing facilities or services may be important. For example, deciding not to extend utilities is a very effective way to keep an open space open.

INFORMATION AND PLANNING

The collection and dissemination of data on the physical environment, and on recreation needs and resources, can also be viewed as implementation since it can and should influence project decisions. So can the preparation and publicizing of plans.

IMPLEMENTATION TYPES RELATED TO PURPOSES

The success of the overall action program will depend on striking the right balance among the various implementation techniques. Regulations should not deny property owners all reasonable use of their land so as to provide a free benefit to the public. On the other hand, the public should not acquire land to prevent environmental abuses which are justifiably the subject of regulation. Indeed, in each case the approach taken should be the one which accomplishes the desired purpose at the least cost to the public.

The most appropriate technique will depend on the particular type of open space or natural resource, its location, and the reason for public interest in it. Often a combination of techniques will be in order. Indeed, reasonable but effective regulations should apply everywhere, and provide back-up for whatever other methods may also be used.

Noncompensable regulations are generally appropriate as the primary technique in situations

where (1) the main intent is to prevent unsafe development in hazardous areas or ban practices (like unsightly grading or discharge of pollutants) which will adversely affect other properties or areas or (2) the desired open space qualities or resources can be adequately conserved through regulation while the land remains in private ownership. For the latter purpose in large open spaces where some development must be accommodated, such approaches as planned unit developments and specific plans will be especially valuable. (Some direct public use, as in parks a subdivider sets aside, is in certain cases achievable through regulation.)

Full fee acquisition is typically appropriate where regulations alone will not suffice and either the land is intended for full public use (such as a park or watershed) or preservation of the desired open space qualities or resources will preclude any private use whatsoever.

Less-than-fee acquisition, or purchase and sale-back or leaseback, will tend to be appropriate where regulations alone will not suffice and acquisition will allow the owner some compatible, limited, but valuable use such as grazing or farming. (These approaches may also provide for some limited public use, such as hiking trails.) Compensable regulations or some form of preferential tax treatment may be appropriate in some of these situations.

The many kinds of capital improvements and services will be appropriate to very diverse situations, making it hard to generalize. Finally, environmental review of projects will be important everywhere, as will planning and the collection of environmental information.

ROLES

Successful implementation will also require a proper balance between the roles and responsibilities of the various public agencies and the private sector--as well as a high level of coordination. Because so many open spaces and natural resources have multiple purposes, and cut freely across man-made boundaries, individual programs will often

need to involve many different agencies.

In each case, the answer should depend on (1) how big the area is which receives substantial benefits from the open space or resource and (2) who can most effectively carry out the necessary programs. Thus, cities and other local governments should be responsible for neighborhood parks and other matters which can best be dealt with at that level. Regional agencies should generally be responsible for things like parks which serve the whole region or pollution problems which affect all of it. Federal and state agencies should deal with needs of nationwide or statewide significance--as well as providing financial and technical aid to lower-level governments. Finally, developers, recreation suppliers, and others in the private sector have some special responsibilities to their own particular clienteles.

In some cases, an agency may have assumed responsibilities that might better be assigned to others. For example, the City of Oakland operates some park and recreation facilities of regional significance--and consideration might be given to turning some of these over to the East Bay Regional Park District.

Looking at the overall jurisdictional pattern, there is presently a serious gap at the regional level. ABAG performs valuable planning and review functions, but it has no direct power to regulate or acquire land. Other regional agencies such as BCDC do, but they are concerned with only parts of the total picture. There is no regional agency which can deal both comprehensively and effectively with Bay Area-wide open space, conservation, and recreation issues.

FUNDING SOURCES

Among the possible funding sources for acquisition and other programs are:

1. ad valorem property taxes (which presently supply most of the City's General Fund);
2. special taxes on construction, real estate

transfers, or, conceivably, land-value increments (any of which might be earmarked for recreation or conservation purposes);

3. the Gas Tax Fund (which can be used for landscaping, bikeways, and similar facilities within street rights-of-way--but which has not kept up with inflated street construction and maintenance costs);
4. general obligation bonds (which may be useful for major one-time expenditures such as large-scale land acquisition, but which usually require two-thirds approval by voters);
5. revenue bonds (which usually do not need voter approval, but which are useful only for programs which can generate sufficient revenue);
6. user fees (as at golf courses, marinas, or zoos);
7. special assessment districts (to pay for local parks, for example);
8. tax increments within redevelopment areas (which may be earmarked for parks or other projects benefiting the area);
9. many forms of state and federal assistance, a few of which are:
 - a. the federal Community Development Block Grant program (especially relevant for its orientation toward the kinds of low- and moderate-income areas which in Oakland are typically deficient in recreation space);
 - b. the Federal Land and Water Conservation Fund program administered through the State Department of Parks and Recreation (this is mainly intended for sites of regional importance);
 - c. CETA, the federal Comprehensive Employment

and Training Act program (which subsidizes the employment by public agencies of temporary personnel, who could be used for such things as park maintenance or wildlife management);

- 10. various programs or grants offered by nonprofit groups, such as the Nature Conservancy, the Trust for Public Land, or the Ford Foundation (some of these, for example, can act quickly to preserve a threatened open space until a public agency has the money to acquire it);
- 11. voluntary contributions of labor or materials by local citizens (for example, tree planting by youth groups with seedlings donated by nurserymen);
- 12. donations of land (federal tax laws give incentives for this which may be very attractive to some owners) and dedications;
- 13. turnover of other agencies' surplus land for parks or other permanent open space (procedures and prices vary widely, with some agencies able to transfer certain lands free but with many giving little or no preferential treatment to cities wishing to buy).

Furthermore, the money which the City has for open space, conservation, and recreation can be stretched by participating with other agencies in multi-purpose projects.

One problem is that many federal and state assistance programs can be used to acquire or develop parks or open spaces but not to maintain them. For maintenance, cities have to rely largely on their heavily burdened general funds.

RECOMMENDATIONS

The following actions are recommended:

- 1. *The City and other public agencies should*

undertake a balanced array of regulatory, acquisition, and other programs to achieve this Element's goals and policies. In each case the technique, or combination of techniques, employed should depend on the particular type of open space or natural resource, its location, and the reason for public interest in it.

- 2. *The City should urge changes in State law to clearly authorize public agencies to acquire interests in any kind of open space through condemnation.*
- 3. *The City should urge changes in tax legislation to better encourage the conservation of significant open space and natural resources.*
- 4. *The City should urge creation of a regional agency with authority to deal effectively and comprehensively with regional open space, conservation, and recreation issues.*
- 5. *The City should explore the full range of possible funding sources for open space, conservation, and recreation programs.*
- 6. *In particular, the City should seek out and work with other agencies on multi-purpose projects, so as to stretch the money it has for open space, conservation, and recreation purposes.*
- 7. *The City should urge increases in Gas Tax funding, so that a significant part of it can be used to install and maintain bikeways, landscaping, or similar facilities.*
- 8. *The City should urge changes in federal and state rules so as to facilitate the acquisition of surplus public lands for park or other open space uses.*
- 9. *The City should urge the federal or state governments to provide adequate financial assistance to local agencies for maintenance of parks and open space.*

Regulatory and Taxation Programs

Laws to protect open space and natural resources in Oakland and the Bay Area are administered by many agencies at the local, regional, state, and federal levels. The jurisdictional boundaries between these governments should not be viewed as fixed. For example, there have been proposals to involve regional and state agencies more directly in land use control.

REGIONAL, STATE, AND FEDERAL REGULATIONS

Major regulations which are now administered at the regional, state, or federal level include the following:

1. Bay Conservation and Development Commission. BCDC has jurisdiction over San Francisco Bay plus a shoreline band generally going 100 feet inland from the line of highest tidal action. Any filling, dredging, or other significant change within this area is subject to BCDC approval.
2. East Bay Municipal Utility District. Through its comprehensive water control ordinance (and sewage rate schedule), EBMUD controls the strength and composition of wastes entering its system.
3. San Francisco Bay Regional Water Quality Control Board. As one of the regional units of the State Water Quality Control Board, this agency sets water quality standards and controls discharges.
4. Bay Area Air Pollution Control District. For most of the Bay Area, the Pollution district regulates the emission of pollutants from stationary sources like industries and open burning.
5. California Air Resources Board. This State agency is empowered to regulate emission of air pollutants from vehicular sources.

6. California Department of Fish and Game. This department enforces many State laws protecting fish and wildlife.
7. U. S. Environmental Protection Agency. The EPA is authorized to enforce performance standards for vehicles and various industries and products, with special emphasis on combating pollution of all kinds.
8. U. S. Coast Guard. The Coast Guard has primary responsibility for enforcing all federal water pollution laws in the Bay.
9. U. S. Army Corps of Engineers. The Corps has regulatory powers to protect navigable waters, to restrict discharge of certain industrial wastes, and to control work in unfilled parts of diked areas.

In the future new regulations--and the strengthening of many existing ones--can be expected. For example, the Air Pollution Control District has been considering imposing a permit requirement on such "indirect" pollution sources as shopping centers, large subdivisions, and major parking facilities. Both the State Air Resources Board and the EPA have drafted stringent new controls on vehicular emissions (though delays in these have been proposed because of current economic and energy problems).

There is a special need for regulations to protect dry-land open spaces of Bay Area-wide importance. These spaces would include much of the hilly areas beyond Oakland's ridgeline city limits. For some of these open spaces, innovative techniques like compensable regulation might be in order.

LOCALLY ADMINISTERED REGULATIONS

The locally administered regulations which affect Oakland's open space and natural resources are found in many different codes and ordinances. The fact that these laws are discussed separately below does not suggest that they should stay separate. Indeed it may be desirable to relocate some of these controls, or group them into more

comprehensive codes.

Zoning Regulations

On the City's present zoning maps, most of Oakland is shown at a typical range of urban densities. A few parts of the hill area are in zones which require 12,000 or 25,000 square foot lots, densities which may preserve some of the appearance of open space. However, most of the hills--including most of their large undeveloped sections--is in the R-30 One-Family Residential Zone. In theory this zone allows the land to be carved into 5,000-square-foot lots: an overall density which in much of the hill area would be incompatible with the topography and natural conditions. Such unrealistic zoning may lead owners to assume they are entitled to R-30 density however badly they have to butcher the landscape to achieve it.

At present, there is no zone intended mainly for open land uses. Most parks, golf courses, cemeteries, and open college campuses are just included in the same residential (or commercial) zone as the buildings which border them. Some parks are even unzoned.

However, there are certain combining zones which, as now mapped, help to save some open space values. The S-4 Design Review Combining Zone encircles Lake Merritt to protect the setting of that famous open space. The S-10 Scenic Route Combining Zone, which also requires design review as well as imposing other controls, is mapped along certain hill area corridors like Skyline Boulevard. To date, the S-7 Preservation Combining Zone and the related procedure for designating official landmarks have been used, essentially, to protect man-made structures. However, they could also be employed for unique natural features like landmark trees.

For large residential projects, the Zoning Regulations provide a planned unit development procedure which can be very effective in saving open space. Among other conditions of approval, the reviewing body may require creation of an owners' association to maintain the common open

space, as well as dedication of public park or school sites. The developer is offered various incentives to follow this procedure, though he is not required to. Perhaps the procedure could be made mandatory, at least in some of the large vacant sections of the hills. This might be tied to the advance preparation of specific plans telling the developer what kind of project would be acceptable to the City.

Even for smaller-scale projects on individual lots, the Zoning Regulations have requirements for on-site recreational or other open space. Every project involving two or more dwelling units must provide usable open space for the residents. The yard and court requirements in various zones provide some space for light, air, and privacy. However, some of these standards may be inadequate. As most of them were adopted in 1965, a reevaluation would be desirable.

It would also be appropriate to consider additional requirements for developers to plant, or preserve, trees.

Subdivision Regulations

California's Subdivision Map Act, as rewritten in April 1975, now makes virtually all divisions of real property subject to city or county review. The 1975 amendments give local governments broad power to guard the environment against improper development. A city or county may require a subdivider to install improvements which are "necessary or convenient to insure conformity to or implementation of the general plan [or any applicable specific plan]." The law says that a subdivision must be denied if it is inconsistent with these plans, if the site is not physically suitable for the proposed density and type of development, or if the proposal is likely to cause substantial environmental damage.

In Oakland the State law is administered by the City, and supplemented by local ordinances (Article 4, Real Estate Subdivision Regulations, and Article 5, Parcel Maps, of the Oakland Municipal Code). These ordinances have such require-



ments as minimum lot size or width, minimum street widths, and provisions for construction of improvements. A soil report is required (unless waived by the City). Article 4 requires that subdivision design be "consistent with the need to minimize flood damage."

Another provision requires consideration for providing public or common parks and playgrounds. However, it would seem desirable to amend the subdivision controls to add more detailed dedication requirements.

Other Regulations

Other relevant locally administered laws include:

1. the Building Code's provisions for soil reports in known areas of unstable soils;
2. the locally administered restrictions of the Alquist-Priolo Geologic Hazard Zones Act, dealing with construction in such zones;

3. the City's grading ordinance, which requires permits for significant earth moving projects;
4. the Building Code's special provisions on construction within 100-year flood plains;
5. the Oakland Fire Prevention Code's requirements for removal of flammable vegetation around houses;
6. State regulations which encourage energy conservation features in new housing.
7. the new City law imposing sewerage requirements on all houseboats moored in Oakland.

The City's Offices of Public Works and Parks and Recreation cooperate with EBMUD and the Regional Water Quality Control Board by acting as watchdog for illegal discharges into waterways and sewers.

The Port of Oakland uses its regulatory authority to minimize dumping or washing of harmful sub-

stances into the Bay--and generally to promote appropriate use of the shoreline.

Possibly desirable new regulations might include energy conservation requirements for nonresidential construction (these are now, in fact, under study by the state), and changes to City or state building codes to require use of water-conserving plumbing devices.

TAXATION

Open space preserves, allowing tax reductions for open land under the Williamson Act, have been used in many parts of the Bay Area. There are, though, none in Oakland. It may be that tax-reduction techniques like this are inappropriate here because of the City's tax needs and Oakland's high degree of urbanization. However, such techniques might be very helpful in the unincorporated open areas behind Oakland.

ENVIRONMENTAL REVIEW

In Oakland the environmental review process, coordinated through the City Planning Department and City Planning Commission, is actively used to judge the impact of projects. The local ground rules are spelled out in a 1974 City Council resolution entitled "Statement of Objectives, Criteria and Procedures for Implementation of Environmental Quality Act."

RECOMMENDATIONS

The following actions are recommended:

1. *In general, the City should actively use its existing regulations to implement this Element's goals and policies, and amend these regulations where appropriate to improve implementation.*
2. *The City should systematically compare the present zoning and other development controls in the hills with the physical conditions there, and revise these controls where they allow excessive densities or are otherwise*

inappropriate. This evaluation is especially urgent for those large privately-owned sections which are still undeveloped.

3. *The City should, if feasible, place Oakland's major permanent open spaces in a new zone specially designed for open uses.*
4. *The City should continue to use a planned unit development approach to encourage developers to set aside hillsides, canyons, or other appropriate parts of their land as open space. The City should also explore the possibilities of making the planned unit development process mandatory in some situations, and of adopting specific plans for critical areas in advance of development.*
5. *The City should review the adequacy of its usable open space, yard, and court requirements, and improve them where appropriate.*
6. *The City should consider, and adopt if feasible, new or improved regulations to protect significant groups of existing trees and to require developers to plant new trees.*
7. *The City should rigorously administer the far-reaching provisions of the new Subdivision Map Act so as to maximize achievement of this Element's goals and policies.*
8. *The City should add to its subdivision controls more detailed provisions for the dedication of parks or recreation areas.*

Acquisition, Improvement, and Service Programs

Over the last few decades, the City of Oakland has budgeted large sums for new parks and recreation programs and the improvement of existing ones. Despite forecasts of heavy fiscal pressures in the years to come, it is expected that Oakland will remain active in park and recreation--and open space and conservation--

matters. However, the City must depend on others to do their share.

NATIONAL AND STATE PROGRAMS

Beside giving financial aid to local or regional agencies, the state and federal governments have also been directly involved in many Bay Area projects. Examples include creation of the Point Reyes National Shoreline, the Golden Gate National Shoreline Recreation Area, and the large wildlife refuge in the South Bay.

It is assumed that they will be involved in comparable projects in the future.

REGIONAL PARK DISTRICT PROGRAMS

The East Bay Regional Park District's Master Plan schematically shows four new park sites in Oakland:

1. "San Leandro Bay Regional Shoreline";
2. "Emeryville Crescent Regional Shoreline";
3. "Mountain Village Regional Preserve";
4. "Claremont Canyon Regional Preserve."

(However, the Plan has a general note that some of its suggested sites may be dropped, and others added, after more detailed study.)

Assuming only those tax sources which are now available to the District, the Plan recommends a 10-year program of \$53 million (in 1973-74 dollars) for acquisition and development of new or expanded parks and trails. Of this, \$42.5 million is for land acquisition, an estimated 29,300 acres of it. Another \$57.9 million of acquisition which the Plan calls for will depend on the District's getting new funding sources.

For the section of its service area which includes Oakland, the District has given top priority to shoreline parks.

The Master Plan also indicates a District role in the preservation of non-park open space, which the District is legally authorized to acquire. The Plan indicates, however, that such acquisition should await additional funding.

SAN LEANDRO BAY

One location which specially interests the Park District--San Leandro Bay-- is a prime example of multi-agency involvement.

Here the Port of Oakland sponsored a study by a citizens' advisory group, with representation from many public agencies. This resulted in a report proposing general guidelines for a park and wildlife refuge here. Detailed negotiations have followed among the Port, the City of Oakland, and the Park District. The Port has agreed to lease extensive lands to be operated as a park by the District. The City of Alameda has agreed to lease its dump area on Doolittle Drive. It is hoped that arrangements can be made later for the section of the park site which is owned by EBMUD. Meanwhile, Alameda County and the Flood Control District have received a Land and Water Conservation Fund grant for acquisition of privately owned portions of the future park. The City of Oakland has offered \$200,000 to expedite park development.

TRAILS

The Regional Park District's Master Plan shows trails (for hikers and cyclists or equestrians) running generally along or parallel to Skyline Boulevard and along Oakland's waterfront, as well as some lateral routes such as San Leandro Creek. Initial priority is going to the trails near Skyline and certain lateral routes.

The City is also involved in trail development. One project in particular gives another good example of inter-agency cooperation. Much of the right-of-way for a Shepherd Canyon trail has been bought from the State Department of Transportation by the Regional Park District, and

the City has agreed to develop and maintain the trail.

CITY PARK AND RECREATION PROJECTS IN GENERAL

In 1972 Oakland's Office of Parks and Recreation, with extensive citizen input, compiled a list of about 60 desirable park and recreation projects to be done by the City. Sixteen of these projects were to involve new or expanded sites, totalling nearly 100 acres of new land, while the others were for improvements at existing sites. For the list as a whole, the estimated price tag was some \$8 million.

The list was prepared to illustrate what might be done over a six-year period on a pay-as-you-go basis (assuming certain outside financial aid) if the City doubled its own average outlay for park and recreation improvements. The question of such a doubling was placed on the 1972 Oakland ballot as "Measure G," which was advisory in nature rather than binding on the City Council. That measure was approved by the voters.

Although it is by no means an official capital improvement program, the Measure G list (to which certain projects have since been added by the Office of Parks and Recreation) has been of value. It is a source from which park and recreation projects can be picked as money becomes available. Indeed the City has already funded quite a few of the projects on the list, making heavy use of federal or state assistance programs.

However, the list needs to be thoroughly re-studied in light of this report's deficiency analysis and allocation strategies. (For example, some sections of Oakland may deserve a bigger share of the money.) Furthermore, it needs to be expanded into a fuller, longer-range "shopping list" of desirable projects. Within this list priorities can be assigned to individual projects, thereby identifying those to be done in the first few years.

Project ideas, for inclusion in the revised list, can come from this Element's proposals, suggestions, and discussion of potential sites; from additional study by the Office of Parks and Recreation and by the City Planning Department; and, of course, from proposals made by citizens.

It is impossible to say here exactly how much should be spent over the coming years. This will depend on how much is done by other public agencies, how the City's own fiscal situation develops, and how much state and federal aid the City receives. In order to make a major reduction in the present serious deficiencies, however, an overall level of effort may be needed something like that implied by the old Measure G list.

COMMUNITY DEVELOPMENT AND CETA PROJECTS

The City will likely have to pay for many of its park and recreation projects out of the Community Development (CD) block grants it receives from the U.S. Department of Housing and Urban Development (HUD). That money is projected to total some \$62 million from 1975 to 1981, and it is anticipated that some significant portion can be spent for parks and recreation.

The City's first-year CD program includes \$625,000 for new parks (as well as funding for redevelopment, two neighborhood centers, and a youth development center, all of which will incidentally provide other recreation facilities):

1. \$70,000 for land acquisition for a neighborhood recreation area at Peralta Creek and 37th Avenue;
2. \$145,000 to acquire and plan the wooded estate west of Maxwell Park School for a neighborhood park;
3. \$365,000 for acquisition and development of the block bounded by Sunnyside Street and Bancroft, 96th, and 98th Avenues for a neighborhood park;

4. \$45,000 to develop a mini-park on donated land on Holly Street near 98th.

As part of a "Special East Oakland Revitalization Program," the 1975-76 program also includes funding for a mobile recreation program, for supplementary park and recreation clean-up crews, and for recreation staff to reopen some existing facilities in that area. This money is in addition to CETA funds which the City is using for the same purposes.

The City's 1976 application for the second CD year contains \$1,340,000 for parks and recreation. This includes \$690,000 for two existing sites and completing three of the first-year projects; \$600,000 to begin or plan a new park at Peralta Creek and Paxton Avenue and one somewhere in Central East Oakland; and \$50,000 for a new park at the MacArthur Freeway and Grove. There is also \$35,000 for interim recreational gardens on vacant lots.

CREEK PROJECTS

Additional funding for park and recreation projects is expected to come from the Alameda County Flood Control and Water Conservation District. The District expects to complete its main channel improvements along Oakland's creeks by 1981. During the critical 1976-81 period, these projects will typically be along environmentally important streams which flow through neighborhoods with serious recreation deficiencies. These include: (1) Glen Echo Creek near Piedmont Avenue; (2) Peralta Creek from School Street to 40th Avenue; (3) Temescal Creek from Grove Street to Adeline; (4) most of Sausal Creek from Nicol Avenue to East 14th Street; (5) Arroyo Viejo from MacArthur Boulevard to Lockwood Street; (6) Courtland Creek near High Street.

The City will look to the District to preserve the creeks' natural values--and help meet local recreation needs--to the maximum extent possible. At some places where appropriate, it is expected that the City will also provide facilities or programs to go beyond what the District is empowered to do.

STATE PARK BOND PROJECTS

Oakland's share from the State Beach, Park, Recreational, and Historical Facilities Bond Act of 1974 comes to about \$1.3 million. The City is contributing some of this toward the San Leandro Bay project, as mentioned earlier. The City has received State approval to use the remaining money as follows:

1. \$80,000 to redevelop existing Raimondi Field into a "West Oakland Regional Sports Center";
2. \$150,000 to develop the existing unimproved Shepherd Canyon Park;
3. \$519,690 to acquire about 15 acres of the Holy Redeemer campus and develop it as an East Oakland Regional Sports Center";
4. \$350,000 to buy 54.5 acres of State-owned land near the Caldecott Tunnel, for later development as the "North Oakland Regional Sports Center."

PROJECTS IN URBAN RENEWAL AND REBUILDING AREAS

The Oak Center Redevelopment Project (in the Lowell study area) has already helped provide major new park and recreation facilities, and more are planned. New or expanded neighborhood recreation areas will be built next to Cole and Lafayette Schools.

In the Elmhurst renewal area, East 14th Street is being landscaped and beautified between 81st and 100th Avenues, and tennis courts are planned for a site next to Elmhurst Plaza.

Parks or plazas are also planned within the City Center and Chinatown renewal projects in the Central District, and the Stanford/Adeline project in the Wilson study area.

The Port's rebuilding projects along the shore are expected to provide various walkways and other

park or recreation space, as well as new harbor facilities.

OTHER PROGRAMS

The Oakland Housing Authority has applied for a big modernization grant to be used largely for recreation facilities or areas at or near public housing. Using other funds, it has recently built a small playground near 59th and Canning.

The Oakland Public Schools is making various changes in connection with its earthquake-safety rebuilding program. Edison Elementary School, in the Westlake area, is being closed. In the Durant study area, Clawson Elementary School is being closed but the site of Durant School itself is being expanded. A few other sites will or may be enlarged. Some of the expansion or rebuilding will affect local recreational capacity.

The Alameda-Contra Costa Transit District has begun special summertime bus service to make several of the nearby regional parks more accessible to Oaklanders and other East Bay city dwellers.

It is expected that street tree planting or other landscaping will be done by the City in connection with future street improvement projects. Because of their relatively low cost, street landscaping projects are also appropriate for private groups and citizens. Recent examples of such efforts are the locally sponsored tree planting along East 14th Street (near Fruitvale Avenue) and along College Avenue. The City has been encouraging privately-initiated planting through certain street tree programs which, in effect, share the cost between the private party and the City.

Finally, a wide range of conservation programs--some of them already discussed in Chapter 2--are underway or are expected in the future. One interesting program by the Flood Control District gives free trees or bushes for planting on hill area private property where vegetation has been

damaged by fire or freezing. Other programs include the District's continuing maintenance and debris clearance along waterways; the City's sewer separation projects; EBMUD's and others' water supply or pollution control projects; and several agencies' vegetative management efforts in the hills.

RECOMMENDATIONS

The following actions are recommended:

1. *The City should urge the Regional Park District to seek funding to let it accelerate its acquisition and development program, and to give special priority to projects which serve Oakland and other central cities.*
2. *The Regional Park District, the City, and others should continue to develop bike-ways and pedestrianways in and near Oakland.*
3. *The City should continue to undertake projects, as rapidly as its financial resources permit, to reduce its park and recreation deficiencies at the neighborhood, community, and city-wide levels. During the 1976-81 period, enough should be done to make a significant reduction in these deficiencies.*
4. *The list of projects compiled in 1972 by the Office of Parks and Recreation should be re-evaluated in light of this Element's findings and policies, and updated and expanded into a fuller "shopping list" of desirable projects, with priorities assigned to each.*
5. *The Flood Control District should make every effort to maximize the recreational and environmental benefits from its upcoming channel improvement projects along Oakland's creeks. Where appropriate the City should provide park or recreation areas, facilities, and programs, beyond those which can be provided by the District, in conjunction with these projects.*
6. *The City, other agencies, and private groups*

and citizens should continue to undertake a wide variety of conservation and landscaping programs.

Planning and Information Programs

This Element does not pretend to be the last word on the matters it deals with. Continuing planning will be needed--and, for this, more information will be required.

PLANNING

The Element itself will need to be reviewed from time to time, and refined. More detailed standards for certain recreation facilities might be added, for example. The Element leaves some issues open--such as feasibility of several new parks. Besides, the Element will need to be supplemented by more detailed planning.

Park and Recreation Planning

One major effort will need to be the preparation of a long-range "shopping list" of City park and recreational projects. The Office of Parks and Recreation proposes to develop such a list during 1976-1977, working in coordination with the City Planning Department and the Office of Community Development. In doing so, it will seek recommendations from the CD District Councils.

To facilitate this effort, it may be desirable to translate Chapter 3's general allocation strategies into a detailed project rating system. Such a system could be used to test each potential project by giving it numerical weights based on how well it meets stated criteria. Also, the area allocation model might be refined as suggested on page 103.

Creek Planning

Some potential recreation projects will be along Oakland's creeks, which will require sound planning over the coming years. This planning must give due recognition to the creeks' environmental values--as well as the many practical difficulties

involved such as the typical closeness of adjacent houses, the concerns over security, possible opposition of adjacent property owners, and the complexities of land acquisition. A multi-purpose viewpoint is needed, with flood control, scenic, and recreational concerns all taken into account.

Despite such problems, a start has been made toward good creek planning. For example, the City and the Flood Control District have worked together to create new parks on sections of Temescal and Sausal Creeks. The City has consulted closely with the District on the Peralta Creek park proposals mentioned earlier. Furthermore, the City's second-year CD application program contains \$10,000 for a special study of Sanborn Park, adjacent Sausal Creek, and their relationship.

The need now is to continue and improve the planning process, with the City taking a less passive role than it usually has in the past. The planning must be multi-purpose, with flood control, ecological, scenic, and recreational factors all taken into account. There must be continuing, effective working relationships between the City and the District. Where appropriate, the Regional Park District may also be involved. The planning should, in part, produce guidelines on such city-wide issues as priorities and maintenance arrangements. However, much of it should involve intensive study of individual creeks, especially in relation to the local neighborhoods. Major policies might be incorporated in some kind of creeks plan or "element," which might be adopted both by the City Council and the Board of Supervisors.

Other Planning

Detailed planning studies are desirable for various areas with special opportunities or problems. Examples include the Claremont Canyon and Emeryville Crescent areas. Some "areas" that need attention are the corridors along street widening projects. Questions of possible greenbelt or park use of surplus properties have arisen after acquisition and construction. What seems needed is pre-acquisition planning which would allow environmental and recreational factors to be considered in advance, possibly influencing decision on right-of-way and property taxes.

Planning is also needed at the regional, state, and national levels. One promising example is the upcoming multi-agency study of a possible greenbelt through the ridges of the East Bay. Much of the needed planning at these levels will involve exploration of new conservation technologies. For example, the tapping of new energy sources will require massive research and experimentation--by government, industry, and utilities. In this region, P.G. and E. has already been doing some study of potential energy sources.

INFORMATION

The figures on park and recreation resources and deficiencies should be updated each year to reflect new projects, and the estimates of recreation demand should be changed whenever the required population data are available. (It may also be desirable to refine the analysis itself--by focusing on specific types of facilities, for example, or adjusting the assumed demand factors if further study so indicates.) Such monitoring will show how each area's per capita investment is changing, and how fast--and whether the gaps between it and other areas are closing or getting wider.

For this updating, it would be very helpful if the major study areas matched the CD Districts. At least in some cases, a breakdown into smaller subareas is also desirable.

A more detailed inventory of potential park and recreation sites, and of open spaces in general, would also be desirable. Of special interest is publicly owned land, relevant data on which are often unavailable in convenient form. A good deal of environmental information is available, however. For example, the City maintains an extensive landslide file, which can be used to help evaluate specific sites in more detail. Data is also collected by many other agencies, including regional ones like ABAG.

One way to effectuate this Element is to get such data out to people, so it can influence their decisions which affect the environment. Educational and interpretive programs are needed to alert the public to the importance of conservation, and to the available conservation techniques. Such efforts may be either formal

(through the school system, for example) or informal (through recreation programs or the media).

RECOMMENDATIONS

The following actions are recommended:

1. *The City should review and refine the Space, Conservation, and Recreation Element from time to time, and supplement it where appropriate by detailed planning studies of specific areas or subjects.*
2. *The City and the Flood Control District should actively work together to plan comprehensively for the multi-purpose improvement of Oakland's creeks.*
3. *The City should keep up to date, and refine where appropriate, this Element's park and recreation deficiency analysis. The updating should include a conversion to study areas which, as closely as data permit, match Oakland's Community Development Districts. Also, the feasibility should be considered of breakdowns into smaller subareas.*
4. *The City and other agencies should gather additional open space and environmental data, and should undertake programs to alert the public to conservation values and techniques.*

Appendix 1

Park and Recreation Acreage and Investment Analysis

This study's analysis of park and recreation acreage and investment has been described in general terms by Chapter 3. The detailed methodology and assumptions are explained here.

The approach that was used is a variation of the "needs/resources" technique which several cities have employed in their park and recreation studies. That technique usually gives each of a city's subareas an index of recreation need and an index of recreation resources, standardizes the scores, and then compares the needs index with the resources index to determine a priority rating for each area. While that result shows which areas are the most deficient, it does not say directly how much more deficient one area is than another--and it does not say how much of the future investment each should get. In contrast, the refinement developed in the present study does address both these questions.

COMPUTING EFFECTIVE POPULATION

The relative need for neighborhood-and-community-level public parks and recreation was expressed by computing an "effective population" for each study area. To obtain this, the actual 1970 population was adjusted according to three indicators of recreation need:

1. the percentage of persons under 18 years of age;
2. the percentage of persons below the poverty line (as defined in the 1970 Census);
3. the percentage of housing units in multi-family buildings (two-or-more-unit structures as defined by the Census).

It would have been better to use the proportion of persons, rather than units, in multiple dwellings, but that data was unavailable by tract.

The assumed demand ratios mentioned on pages 42 and 43 were used to compute--for each area and for Oakland as a whole--an age score, an income score, and a housing score:

$$\text{Age Score} = \% \text{ 18 or Over} + 3 (\% \text{ Under 18})$$

$$\text{Income Score} = \% \text{ Above Poverty Line} + 2 (\% \text{ Below Poverty Line})$$

$$\text{Housing Score} = \% \text{ One-Family Units} + 1.25 (\% \text{ Multi-Family Units})$$

(The choice of ratios was made jointly by the City Planning Department and the Director of Parks and Recreation. The decision basically was judgmental, though available literature was consulted. The latter included national survey data by ORRRC on participation rates by age, and certain recommendations in the American Public Health Association book, Planning the Neighborhood.)

The scores for each area were then converted into relative scores by comparing them with the corresponding citywide scores:

$$\frac{\text{Relative Age Score for Area A}}{\text{Citywide Age Score}} = \frac{\text{Area A Age Score}}{\text{Citywide Age Score}}$$

$$\frac{\text{Relative Income Score for Area A}}{\text{Citywide Income Score}} = \frac{\text{Area A Income Score}}{\text{Citywide Income Score}}$$

$$\frac{\text{Relative Housing Score for Area A}}{\text{Citywide Housing Score}} = \frac{\text{Area A Housing Score}}{\text{Citywide Housing Score}}$$

If Area A has a higher percentage of people under 18, persons below the poverty line, or multi-family units than does Oakland as a whole, its relative age, income or housing score will be greater than 1.00. If it has a lower percentage than Oakland as a whole, its relative score will be less than 1.00.

For each study area, the relative scores were then multiplied by each other, and by the actual area population, to yield the area's effective population:

$$\begin{matrix} \text{Effective} & & \text{Relative} & & \text{Relative} & & \text{Relative} & & \text{Actual} \\ \text{Population} & = & \text{Age Score} & \times & \text{Income Score} & \times & \text{Housing Score} & \times & \text{Population} \\ \text{of Area A} & & \text{for Area A} & & \text{for Area A} & & \text{for Area A} & & \text{of Area A} \end{matrix}$$

If an area has a higher-than-average percentage of young people, poor people, and multi-family units, its effective population will be bigger than its actual population. The reverse will be true if it has lower-than-average percentages.

As Table 2 on page 57 demonstrates, the effective populations of the various study areas add up to the actual population of Oakland as a whole.

DETERMINING EXISTING ACREAGE AND INVESTMENT

In general, acreage and investment were counted for land and/or facilities which were acquired, built, or budgeted through fiscal year 1974-75.

For estimating investment in land, a standard figure of \$1.50 per square foot was used in all sections of Oakland. It was felt that reflecting area-by-area land value differences would have biased the analysis, since land price in itself serves no recreational purpose. It is the amount (and quality) of the space which is important. The investment in improvements at each City site was estimated by the Office of Parks and Recreation. For school playgrounds a standard improvement cost of \$1.00 per square foot was used; this ratio was suggested by Oakland Public Schools staff.

The investment figures were generally in 1972 dollars, except that for a few sites budgeted after 1972 the actual budget figures were used.

The acreage and investment totals given in Chapter 3 exclude school gyms and other school buildings (as opposed to playgrounds); the "children's centers" run by the Oakland Public Schools; and the water area of Lake Merritt, Lake Chabot, and the Bay and Estuary. Operating and maintenance costs were not counted as investment.

For the analysis of usable neighborhood and community sites, acreage and investment were counted for public school playgrounds, recreation centers, and other usable neighborhood and community parks and recreation areas--and those portions of citywide or regional public sites which are also substantially usable at the neighborhood or community level. Determination of the latter was based on site-by-site judgments by the Office of Parks and Recreation and the City Planning Department. (At diversified, intensively used Lakeside Park, it was assumed that all the acreage and investment are usable at the neighborhood or community,

as well as citywide or regional, level.) Undeveloped or purely ornamental sites were excluded.

Some conceptual problems arose where a neighborhood or community site is located at the edge of a study area. In such a case the site may effectively serve only part of that area--while also serving, though, a portion of the adjoining area. In general, however, the study areas are big enough that situations like this largely cancel each other out. In nearly every case, therefore, each site (or portion thereof for a site which actually straddles an area boundary) was simply counted in the study area where it is physically located. However, Lakeside Park--which is physically in the Westlake, Roosevelt, and McChesney study areas--was split up among them roughly in proportion to the amounts of closely benefited area in each rather than the percentages of the park itself.

CALCULATING ACREAGE AND INVESTMENT RATIOS

To determine per capita acreage or investment, the total amount of acreage or investment was divided by the effective population (or, for figures on Oakland as a whole, by the actual population). The resulting per capita figures directly indicate the study areas' relative sufficiency in aggregate acreage or investment, as compared with local needs.

COMPUTING FUTURE INVESTMENT SHARES BY AREA

For future investment in neighborhood and community parks and recreation, a special allocation model was developed. This assumed that the more deficient an area is now compared to the "best off" area--the one with the highest per capita investment--the bigger the share it should get of future investment.

Each area was assigned an allocation score based on that relationship:

$$\text{Allocation Score for Area A} = \frac{\text{Per Capita Investment in Best Off Area}}{\text{Per Capita Investment in Area A}}$$

This means, for example, that if Area A now has only half as much investment per capita as the best off area, it gets an allocation score of 2.00.

(The formula gives all the study areas some share in the future allocation, since even the best off area itself gets a score of 1.00.)

Because the study areas vary greatly in population, it was then necessary to weight each area's allocation score by its effective population:

$$\frac{\text{Weighted Allocation Score for Area A}}{\text{Allocation Score for Area A}} = \frac{\text{Effective Population of Area A}}{\text{Population of Area A}}$$

Finally, the weighted scores for all the areas were added up, and each area's figure was computed as a percentage of this total. That percentage is the area's implied share of future neighborhood and community park and recreation investment:

$$\% \text{ Share for Area A} = \frac{\text{Weighted Allocation Score for Area A}}{\sum_{i=A}^n \text{Weighted Allocation Scores for Areas A Through n}}$$

An alternative method which might be used in future would involve setting some desirable standard for aggregate investment per capita. Allocation scores would then be assigned in proportion to each area's per capita "gap"--if any--below that standard.

Appendix 2

Environmental Impact

According to the State's Guidelines for Implementation of the California Environmental Quality Act of 1970, an environmental impact report on a general plan may be more general in nature than one on a specific construction project. This is because a general plan is less specific and its effects therefore cannot be forecast as precisely. The guidelines also say that an EIR on a general plan element may be combined with the plan document.

This whole Open Space, Conservation, and Recreation Element report is therefore intended to serve as an EIR on itself. Within it, this appendix relates the Element more specifically to the points listed in the EIR guidelines--doing this partly through references to other sections of the report.

DESCRIPTION OF PROJECT

The "project" consists of adopting the new Open Space, Conservation, and Recreation Element, with associated changes to other parts of the Comprehensive Plan (including repeal of the earlier Open Space, Recreation, and Conservation Element). Its location and boundaries are shown on Maps 1 through 9, while location within the surrounding region is depicted on Map 10. The project's purposes are the goals and policies recommended in Chapters 2 and 3.

Essentially the project calls for:

1. permanently preserving certain open spaces,

while accepting (or at least continuing to accept) construction on others;

2. taking a wide range of public and private actions to conserve plant, animal, water, energy, and other natural resources;
3. making concerted efforts to meet recreation needs through a great variety of programs and facilities, including many new parks and recreation areas.

Compared with the earlier Open Space, Recreation, and Conservation Element, the new Element implies that (on balance) a greater percentage of Oakland's presently vacant or agricultural land be permanent open space. It is more specific in dealing with resource conservation and parks and recreation. Also, there are some significant differences in future park locations.

The project's technical and environmental characteristics are described in Chapters 2 and 3, as are some of its economic features. Other economic matters are discussed in Chapter 4, which focuses on implementation.

DESCRIPTION OF ENVIRONMENTAL SETTING

Oakland is a large central city with a great range of land uses and environmental conditions, from vacant hillsides to industrial shoreline. Chapter 2 contains extensive environmental description, while Chapter 3 emphasizes parks and recreation and demand factors therefor. Supplementary descriptions appear in the City and ABAG plans and reports cited in Chapter 1.

Oakland's environmental problems, including that of unmet recreation needs, are shared to a large degree by the surrounding Bay Region--a growing area already housing several million people. More or less continuous urbanization extends from below San Jose on the south to the upper reaches of San Pablo Bay on the north. Open land has been disappearing fast, particularly near the central cities, and this makes the remaining close-in natural spaces all the more important. Of special interest is the Bay--and its shoreline, most of which is still inaccessible to the public and which can be regarded as a scarce regional resource. Various kinds of plant and animal communities, such as salt marshes, and certain individual species are also scarce resources, especially within or near the central cities. Furthermore, clean air and pollution-free waterways have in recent decades been comparatively rare.

Fortunately, various regional and local plans have been adopted, and implementing actions have been or will be taken, which in the aggregate should do a great deal to remedy these problems. The plans are discussed in Chapter 1, and specific actions in Chapter 4.

THE ENVIRONMENTAL IMPACT OF THE PROPOSED ACTION

The project's environmental effects will result from the many individual park, recreation, conservation, and development actions which will or may be undertaken in conformity with it. Details will of course vary greatly from project to project and from area to area, while the timing of the effects will depend on scheduling of the individual actions.

One might discuss only those impacts which will result from the differences between the new Element and the earlier Open Space, Recreation, and Conservation Element. However, since the new Element is to replace the earlier one as a whole, it is appropriate for most purposes to take a more basic look: that is, to compare the results of implementing the new Element with the

present state of the environment. This approach is followed below except where otherwise noted.

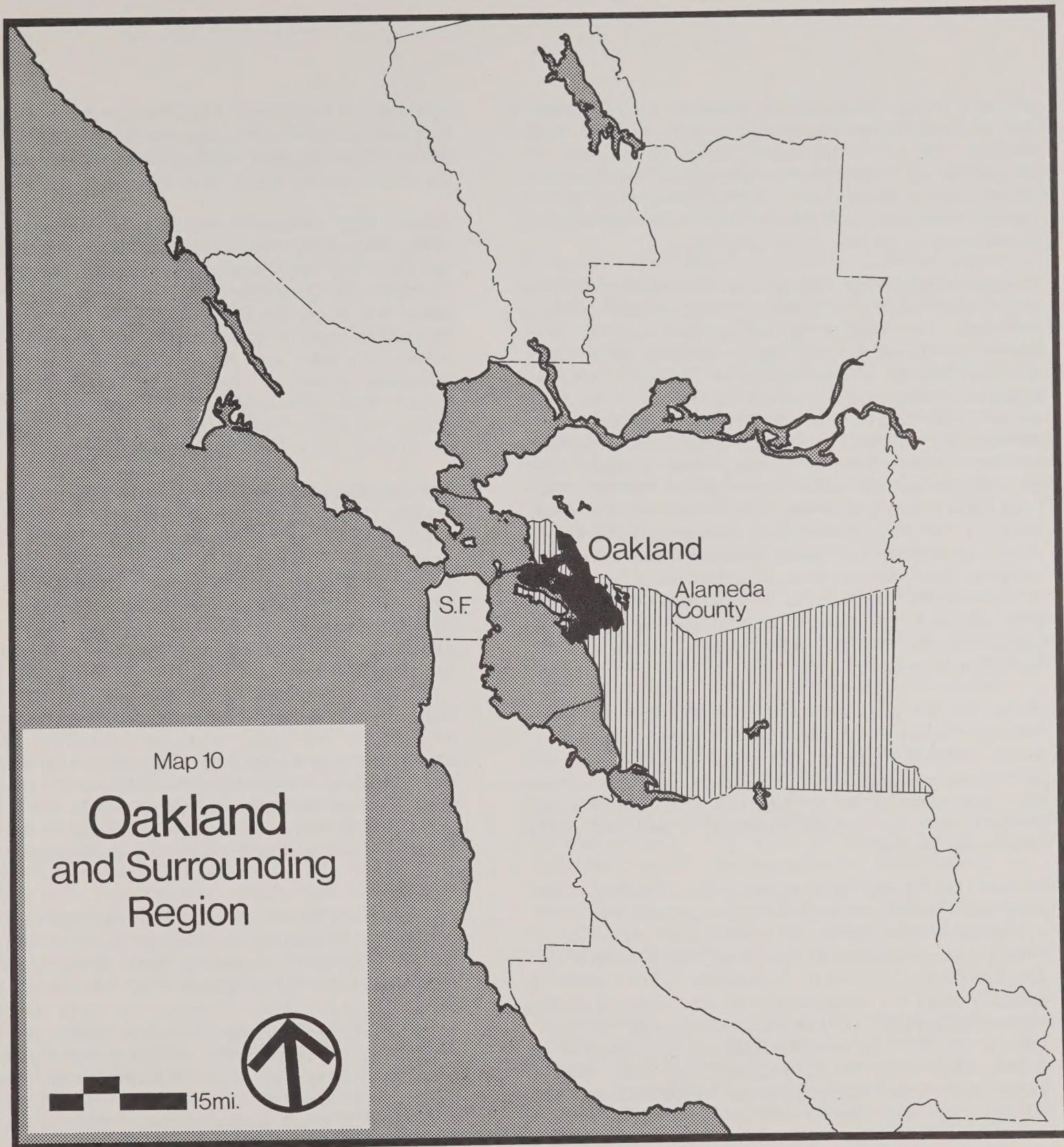
The project's overall impact should be quite beneficial. However, there also will (or may) be effects that are adverse from one viewpoint or another. The Element accepts some consumption of open space and natural resources, while various beneficial actions it recommends may have some undesirable side effects.

Implementation of the new Element will bar development of a large amount of existing acreage which has positive open space values, or on which development would be subject to geologic, fire, or other hazards. On the other hand, the Element accepts--or at least continues to accept, if compared with prior City policy--development on many open spaces. The biggest sections of existing open land where some major construction is likely can be identified by comparing Map 1 with Map 2. Certain physical changes will even occur where parks or recreation areas are created. Furthermore, there may be significant Bay fill at some places (see pages 22 to 25).

Unless enough precautions can be taken, development will tend to cause the types of adverse effects discussed in Chapter 2. However, especially in critical areas like the hills, the Element calls for stringent controls and other actions that will conserve many resources (and often keep much of the site open) even where construction occurs. Some hazards may actually be mitigated.

On balance, soil erosion should be reduced. As for other earth resources, the Element provides for possible future extraction--but subject to strict controls so as to offset the undesirable effects extraction can have (see page 17).

Development in general will add to sewage flows, and construction on open land will tend to increase stormwater runoff. Extra



water will be demanded in various cases--such as for the extensive landscaping the Element recommends. (On the other hand, these increases should be at least partly offset by recommended conservation measures.) Both irrigation and runoff changes will likely have some effects on groundwater, as may some grading.

Present conditions along various creek sections will be altered, with both positive and adverse impacts. Much existing vegetation may be removed, at least during construction, and some reaches may be culverted or realigned. In exchange, flood hazards and erosion will be reduced, attractive new planting will often be added, and certain sections will become parks or trails. Along the shoreline, some changes will be made to accommodate the planned harbor, recreational, and other uses. There will be dredging in the Bay, providing benefits such as shipping access but also perhaps some adverse effects such as release of substances which have collected on the bottom. Development in general over or next to streams and bodies of water can cause erosion or pollution unless there are adequate safeguards.

Human health will benefit from actions that remove unsanitary conditions and pests (such as along creeks), and by the various water and air pollution control efforts. Some adverse effects may come from water pollutants (including those brought down by runoff increases) and air pollution (see below).

Impacts on plants and animals will vary according to individual project design and the resilience of the affected species or communities. Construction will often cause temporary displacement. In many locations plants and animals will be displaced, or at least significantly affected, in the ways discussed on pages 34 to 35. In various places new species or communities will be introduced. On the other hand, many important examples of existing communities will be saved, even enhanced.

The park and recreation projects and actions de-

scribed in Chapters 3 and 4 should reduce park and recreation deficiencies at a significant rate. The fastest improvement will tend to be in those areas which are now most deficient.

There will be many notable changes in appearance, especially where construction occurs within existing open space or grading alters the topography. (However, in some open areas the Element will, by keeping them open, prevent major visual change.) Landscaping or trees will be added in parks and other locations and along numerous streets. Unsightly litter will be removed from some places. Finally, new public access will let more people enjoy the views at places like the shoreline.

Private development, new parks and recreation areas, and environmental improvements in general will bring more people and traffic into some areas. There will or may be effects such as noise and dust, especially during construction; air pollution; and decreased privacy. On the other hand, the Element will tend to prevent these effects in some areas by barring development there.

Significant amounts of energy resources will be used for various purposes including construction and travel to new parks and other destinations. Yet the prevention of development in some places may offset this to a degree, while more savings are likely from the conservation measures discussed on pages 37 to 40.

Implementation of the Element will affect urban land use, circulation, and population patterns in various ways, creating both adverse and positive effects in environmental--or housing, economic, or fiscal--terms. It will do this by barring development in some locations while accepting it in others; by directly displacing some land uses and their occupants for new parks or other projects; and by stimulating investment in some areas through environmental improvements. Land values, assessments, and tax revenues may be affected accordingly.

There may also be increased demands for public services and facilities in some areas (though such demands may be avoided where implementation of the Element prevents development).

A good deal of public money will be needed for the recommended park, recreation, and conservation projects. There will also be financial impacts on the private sector, such as the outlays developers make for environmental improvements or safeguards. Many of these costs will be passed on to consumers.

ANY ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED IF THE PROPOSAL IS IMPLEMENTED

The likely adverse effects from the project have been described in the last section. Many of these will be unavoidable.

Within those open sites where development is allowed, some portions will be built or paved over and the others will tend to be affected in other ways. Development will be exposed to various environmental hazards, and in some cases may aggravate these. Even park projects can involve some adverse effects.

Some amounts of mineral, energy, and other resources will inevitably be consumed. There may be some soil erosion, and some increases in water consumption, sewage flows, and stormwater runoff are likely. Certain creek and shoreline sections will have to be altered, and filling or dredging in the Bay may bring some adverse effects. Human health may unavoidably be impaired somewhat by air and water pollution (see the last section). Existing plants and animals will be displaced or impaired at many locations.

Some scenic values will be lost or impaired, including certain large, uninterrupted open spaces and some ungraded hillsides. Picturesque settings like dense eucalyptus forests and deep, overgrown creeks will sometimes have to be sacrificed in the interests of safety, good resource management, or recreation.

Construction in many places will bring temporary effects such as noise. There will inevitably be some longer-term traffic, noise, air pollution, and related effects in certain areas around new development, some kinds of recreation sites, and (possibly) mineral extraction uses.

There may be some unavoidable adverse impacts on land use, population, and circulation patterns. (See also below under "The Growth-Inducing Impact of the Proposed Action.") Certain land uses and their occupants will have to be displaced for various projects. There will be some loss of tax revenue or housing or economic benefits where otherwise-likely development is prevented (with pressures perhaps being diverted to other areas such as the suburbs)--and some increased demand for public facilities and services where development does occur. For both the public and private sectors, there will be some inevitable cost increases.

Nonetheless, it is felt that all these adverse effects will be clearly outweighed by the important project benefits discussed in the last section. The adverse impacts, though, do imply the need for a wide range of measures to minimize or compensate for them.

MITIGATION MEASURES PROPOSED TO MINIMIZE IMPACT

Most of the potential adverse effects can indeed be mitigated. This will be done through various combinations of the management techniques, design features, and other measures which this report describes in broad terms. Detailed prescriptions will come from future studies or EIR's which tailor these measures to individual projects and sites.

In numerous cases where development occurs, many of the affected resources--even much of the existing open space--will be saved through means such as planned unit development designs and careful zoning and subdivision review. For example, cuts and fills can be planned to check soil erosion, slow runoff, and avoid impairing

aquifers or aggravating landslide hazards. Open buffer areas or other devices can be used to protect neighbors' privacy. (In the case of large-scale development in the hills, sizable parts of each site will likely be set aside as permanent open space.) Improvements such as new planting will be provided at many places. This overall level of impact is considered acceptable because of the housing, economic, and possibly fiscal benefits the development will allow, and because the mitigation measures will reasonably protect, and sometimes enhance, the environment.

Consumption of water and earth resources will be kept down by various means, such as use of native plants for landscaping or recycled wastewater for irrigation. (See pages 14 to 18 for measures relating to earth resources, and pages 39 to 40 for solid waste.) Though some significant consumption is still likely, this is felt to be acceptable because of the environmental, economic, and other benefits it will allow.

The adverse impacts from changes affecting the creeks, waterfront, and Bay will be mitigated by various means such as tree preservation, creekside parks, public shoreline access, and special efforts to protect water quality from being harmed by adjacent development. (See also pages 20 to 25.) Although some undesirable changes will still likely occur, these are thought to be justified by the safety, economic, recreational, and other benefits that will result.

Many adverse effects on plants and animals will be mitigated through the techniques discussed on pages 35 and 36. Despite these, many acres of existing plant and animal communities will be replaced by structures or paving or by different biotic communities, or at least impaired in some ways. This much change is deemed acceptable because of the housing, recreational, and other benefits it will allow; because many significant existing biotic communities will be protected; and because valuable new living things will often be added, such as trees or landscaping.

Impairment of scenic values will be mitigated in

various ways, such as planting to cover the scars from grading, but the visual character of many areas will still be significantly changed. It is felt that this much change is acceptable because of the associated economic, recreational, and other benefits, and because of the many new scenic values that will be provided.

The adverse traffic, air pollution, and related effects can be significantly reduced by promoting travel modes other than the private automobile. Both the Open Space, Conservation, and Recreation Element and the Circulation Element encourage this--for example, by proposing a bikeway system connecting many park sites. There will still be some significant traffic increases and other effects, though these are considered acceptable because of the recreational and other benefits they will allow.

(One approach might be to provide no parking at new recreation sites, and rely heavily on things like shuttle buses for access. However, this could seriously limit the usefulness of some sites, as many people will still be dependent on auto travel. It seems better to provide some parking at certain sites while also providing, and encouraging use of, alternate travel modes.)

A good deal of energy resources will likely be saved by the encouragement of non-automotive travel modes. Other savings will likely come from techniques like energy-saving construction practices; use of things such as windmill-operated pumps; and special procedures or devices to reduce nightlighting when playfields are not in use. (See also pages 39 to 40.) Though substantial amounts will still be consumed, these can be justified by the recreational, economic, and other benefits they allow.

Many of the possible growth, fiscal, and related effects can be mitigated through various means (see also under "The Growth-Inducing Impact of the Proposed Action"). The strategies discussed in Chapter 3 provide ways to reduce displacement, and costs, for new parks and recreation areas. Some adverse growth, displace-

ment, and related impacts will or may still occur, but are considered acceptable because of the project's overall benefits.

ALTERNATIVES TO THE PROPOSED ACTION

Four general alternatives to the project merit discussion:

1. No project--that is, not adopting the new Open Space, Conservation, and Recreation Element. Existing City policy would be left intact.
2. A new Element with a somewhat different configuration of open spaces. Many changes are possible, such as choosing different park sites in the hills or emphasizing different creek sections in the flatlands.
3. An Element involving all-out efforts to bring park and recreation acreage up to desirable levels. This would insist on early, literal achievement of neighborhood and community standards such as those which the present project endorses only with qualifications.
4. An Element which would call for permanently preserving much more of Oakland's existing open space. It would rule out any private development of most large vacant sites in the hills, and would preclude any significant amount of Bay fill.

Under the "no project" alternative, existing public policy would (if implemented) still protect many open spaces and physical resources. Development would, though, be accepted in some additional places. While producing certain adverse environmental impacts, this might also bring some housing or economic benefits and extra tax revenues. Some public outlays for park acquisition might be avoided. On the other hand, the fiscal benefits could be offset by costs related, either directly or indirectly, to the additional private development. Furthermore, the "no project" alternative would leave Oakland with a much less

adequate policy framework for open space, conservation, and recreation.

The alternative involving a different open space configuration could save more of the open space values of those areas which were added, while giving up such values for those open spaces which were omitted. Conceivably the net effect might be positive, though the present project's open space pattern is felt to be the best as far as present knowledge goes. If future study shows the need for some changes, adjustments can be made then.

The alternative calling for all-out park and recreation area expansion would reduce acreage deficiencies faster. It would also cost more. In the built-up areas with the worst deficiencies, clearance of housing or other structures would often be involved, and the resulting expense and disruption could seriously conflict with Oakland's housing and economic goals. The costs could impair public agencies' ability to pay for resource conservation projects--and to follow other approaches to meeting recreation needs (see page 41). It is felt that the present project's strategy of keeping park acquisition in balance with other efforts is more realistic.

The alternative of preserving much more of Oakland's existing open space would avoid the adverse impacts from otherwise-likely development of the extra areas. At the same time it would give up some housing and economic benefits, as well as tax revenues which--at least on some sites--could exceed the public costs development would entail. The overall fiscal impact could significantly impede public efforts to provide new parks and recreation programs in the built-up flatlands. Environmental benefits which well planned development can bring, such as public access or improved resource management, might be lost. Moreover, from a regional perspective it seems preferable for a certain amount of new development to occur within Oakland rather than contributing to sprawl in outlying areas. Aggregate travel mileage, energy consumption,

and air pollution may thereby be reduced. There are desirable undeveloped sites within Oakland which have much of the needed "infrastructure" (nearby major streets, schools, etc.) already at hand. It is felt that the new Open Space, Conservation, and Recreation Element, together with other parts of the Comprehensive Plan, provides a sufficient policy framework for accommodating a reasonable amount of development, within Oakland, in an acceptable manner.

THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

Some significant cumulative and long-term effects (see earlier sections) will probably result from implementing the new Element. The adverse ones are summarized below.

A significant proportion of Oakland's remaining open land will be developed, at least for low-density cluster housing or for recreation areas. This will bring in more human activity, and often more traffic, noise, and possible air pollution. (Some Bay fill may also occur.) Development will adversely impact at least some of the ecological, scenic, or other values which the affected open spaces now provide--and the development may be exposed to various hazards there.

Some amounts of mineral, energy, and other resources will be consumed, and there may be some soil erosion. Sewage flows and stormwater runoff will increase in places, and there may be impacts on groundwater. Water and air quality (and human health) may be adversely affected in some ways. Certain creek and shoreline sections and other topographic features will be significantly altered. In many places existing plant and animal communities or species will be replaced--sometimes by different (often more highly managed) plants and animals and sometimes by buildings or paving. Certain scenic values will be lost or impaired.

New parks and other projects will displace some

land uses and their occupants. Implementing the Element may also have some effects on overall land use, population, and circulation patterns, and will have various fiscal impacts on the public and private sectors. (See also "The Growth-Inducing Impact of the Proposed Action.")

By barring development in certain places, the Element will in a sense narrow the range of the environment's uses. However, many of these locations have soil, slope, or other characteristics which reduce their desirability for construction. Besides, it is felt that the Element provides a reasonable amount of space for development.

From a different and broader viewpoint, the project will significantly enhance the environment's long-term productivity. The wildlife habitats, recreation areas, and other open uses that it recommends are an essential part of the metropolitan setting. Even where major construction is accepted, extensive landscaping or other beneficial measures are proposed. The recommended conservation projects will protect natural resources. By its very nature, the Element seeks to avoid impairing long-term environmental values in order to enjoy short-run benefits.

Furthermore, the Element's reasonably flexible nature should help to keep future options as open as possible. For example, certain projects are suggested subject to "further evaluation." Because of this flexibility, and because of urgent need for the improved policy framework the Element provides, approval at this time is felt to be clearly justified.

ANY IRRETRIEVABLE ENVIRONMENTAL CHANGES WHICH WOULD BE INVOLVED IN THE PROPOSED ACTION SHOULD IT BE IMPLEMENTED

Many of the impacts discussed earlier will probably be irretrievable. Expensive changes such as hillside grading or major creek modifications are unlikely to be reversed later on. Once an area is developed with buildings and streets, it

may be next to impossible to reclaim it in the future for open space. Even the creation of a new park or recreation area typically implies a long-term commitment of the scarce resource of land. Other nonrenewable resources will be committed by the various public and private actions that the Element calls for or allows. These will include construction materials for buildings, playgrounds, and many other things; fertilizer or other supplies for landscaping; and energy resources for construction, travel, and other purposes. Some soil may be eroded, and other earth resources used up. If and where implementing the Element has growth effects or alters developers' locational decisions, the resulting structures will be there for a long time.

Some irretrievable damage could result from accidents, such as landslides triggered by grading operations. (On the other hand, the Element's proposed mitigation measures may often serve to prevent such accidents.)

Nonetheless, it is felt that the environmental and other benefits from implementing the Element will be important enough to clearly justify the irreversible changes and commitments which are implied. Furthermore, the Element's own recommendations should help ensure that resources are committed in as economical a manner as possible.

THE GROWTH-INDUCING IMPACT OF THE PROPOSED ACTION

The new parks and other environmental improvements which the Element calls for will, to varying degrees, make many parts of Oakland--and even the city as a whole and surrounding areas--more attractive to developers, households, and others. Some projects may do this by removing obstacles to development. (Vegetative management efforts in the hills may conceivably have this tendency because they will reduce local fire risks.)

The increased desirability of these locations may be reflected by construction or population or economic growth. Overall land use, popula-

tion, and circulation patterns may be altered to some degree. Whether, when, or to what extent such effects actually occur will depend on interaction with factors such as market demand, the availability of alternate sites elsewhere, and the increased development costs which the Element will cause in some situations.

At any rate the Element does accept a certain amount of growth, such as in parts of the hills and the waterfront. On the other hand, its implementation will prevent or significantly restrict development in many places--and this may to a degree divert growth pressures to alternative locations either in Oakland or elsewhere in the region.

If and where growth occurs it will tend to increase traffic and noise and possibly air pollution. In some locations, problems of traffic congestion or parking may be created or aggravated. In certain areas, especially some residential ones, growth may cause or worsen deficiencies in school capacity or other community service facilities. In some cases development may displace existing residents or businesses or create unwanted visual changes, such as removal of interesting older buildings. In general land values, assessments, and tax revenues may be affected.

However, such growth effects as may occur can be mitigated through the wide range of controls and actions which the new Element, and other parts of the Comprehensive Plan, call for. For example, developers can be required to provide on-site recreation space or other needed facilities. Zoning can be used to discourage growth in areas where it would overload local public facilities or be otherwise undesirable.

ORGANIZATIONS AND PERSONS CONSULTED

This report was prepared by the City Planning Department of the City of Oakland. Since the draft EIR consists of the whole Open Space, Conservation, and Recreation Element, all those parties contacted during preparation of the

latter are listed below:

1. Alameda City Planning Department.
2. Alameda County Flood Control and Water Conservation District.
3. Alameda County Planning Department.
4. Association of Bay Area Governments (ABAG).
5. Bay Area Air Pollution Control District.
6. Bay Area Sewage Services Agency (BASSA).
7. Berkeley Comprehensive Planning Department.
8. Michael Bledsoe (of OCCUR).
9. Helen Burke (of the Sierra Club).
10. John Campbell (of North Oakland District Council).
11. Contra Costa County Planning Department.
12. East Bay Dischargers Authority.
13. East Bay Municipal Utility District (EBMUD).
14. East Bay Regional Park District.
15. Paul Farnham.
16. Charles Ford.
17. Michael Frawley.
18. Fremont City Planning Department.
19. Hayward City Planning Department.
20. George Hilton.
21. Housing Authority of the City of Oakland.
22. Dale James (of U.S. Department of Housing and Urban Development).
23. Malcolm Leiser.
24. Arthur D. Little, Inc.
25. Los Angeles County Planning Department.
26. Marin County Planning Department.
27. Mary Help of Christians Church.
28. Michael Mills (former chairman of Citizens Against Mountain Village).
29. Oakland Architectural Services Department.
30. Oakland Office of Parks and Recreation.
31. Oakland Office of Public Works.
32. Oakland Parks and Recreation Advisory Commission.
33. Oakland Public Schools.
34. Oakland Real Estate Department.
35. Oakland Redevelopment Agency (staff now part of Office of Community Development).
36. Oakland Traffic Engineering and Parking Department.
37. Pacific Gas and Electric Company.
38. Peralta Community College District.
39. Port of Oakland.
40. Parks and Recreation Committee of San Antonio District Board.
41. Marian Reeve.
42. Richmond City Planning Department.
43. San Francisco Bay Conservation and Development Commission (BCDC).

44. San Francisco Bay Regional Water Quality Control Board.
45. San Francisco City Planning Department.
46. San Leandro Community Development Department.
47. San Leandro Recreation Department.
48. Marilyn Shargel.
49. Southern Pacific Transportation Company.
50. Trust for Public Land.
51. University of California at Berkeley, Jepson Herbarium.
52. University of California at Berkeley, Senior Campus Planner.
53. U.S. Army Corps of Engineers.
54. U.S. Department of Agriculture, Soil Conservation Service,
55. U.S. Department of the Interior, Bureau of Outdoor Recreation.
56. Jay Ver Lee.
57. Walnut Creek City Planning Department.

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O A K L A N D C I T Y C O U N C I L

Resolution No. 55637 C.M.S.

RESOLUTION APPROVING NEW OPEN SPACE, CONSERVATION, AND RECREATION ELEMENT AND ASSOCIATED CHANGES IN OAKLAND COMPREHENSIVE PLAN, AND MAKING RELATED EIR DETERMINATIONS.

WHEREAS, the City Planning Commission has held a public hearing on consideration of adopting a new Open Space, Conservation, and Recreation Element of, and making other, associated changes in, the Oakland Comprehensive Plan; and

WHEREAS, the City Planning Commission has made its recommendations on these matters to the City Council; and

WHEREAS, subsequently the City Council has itself held a public hearing on these matters; and

WHEREAS, the City Planning Commission has approved a final Environmental Impact Report on said proposed new Element and associated changes, which final Environmental Impact Report consists of the report entitled Proposed Open Space, Conservation, and Recreation Element of the Oakland Comprehensive Plan and dated May 26 together with the attachments thereto regarding comments, responses, and related matters, a copy of which is on file with the City Clerk and available there for inspection by the public; now, therefore, be it

RESOLVED: That the City Council hereby finds and determines that the proposed project will have a significant effect on the environment; and be it

FURTHER RESOLVED: That the City Council of the City of Oakland hereby certifies that it has reviewed and considered the information contained in the aforesaid final Environmental Impact Report, including the discussion of possible alternatives to the project, and certifies that said report has been completed in compliance with the California Environmental Quality Act of 1970, as amended, and the State EIR Guidelines; and be it

FURTHER RESOLVED: That the City Council hereby finds and determines that the proposed Open Space, Conservation, and Recreation Element as dated May 26, 1976, a copy of which is on file with the City Clerk, contains appropriate analyses, goals, policies, and programs regarding the subjects it deals with; and be it

FURTHER RESOLVED: That the City Council hereby adopts the aforesaid proposed Element as a component of the Oakland Comprehensive Plan; and be it

FURTHER RESOLVED: That the Open Space, Recreation, and Conservation Element which was approved in 1973 by Resolution No. 53298 C.M.S. is hereby rescinded; and be it

FURTHER RESOLVED: That the Oakland Policy Plan, and other components of the Oakland Comprehensive Plan where applicable, are hereby amended as appropriate to reflect the aforesaid new Element and its goals, policies, and organization, and to reflect the rescission of the aforementioned former Element.

I certify that the foregoing is a full, true and correct copy
of a Resolution passed by the City Council of the City of
Oakland, Calif., on June 22, 1976.

ROBERT C. JACOBSEN
CITY CLERK

Per


DEPUTY



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